

# Consumers' Intention towards Plastic Bags Usage in a Developing Nation: Applying and Extending the Theory of Planned Behavior

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## Abstract

Plastic bags waste is one of the most hazardous substances in the world. Unrestricted use of plastic bags changing the climate and creating threat for the terrestrial and aquatic environment. Although different countries banned plastic bag usage, but people are still using them. To examine consumer intentions towards plastic bag usage, the study extended the theory of planned behavior by adding religiosity as an additional predictor of intentions with attitude, subjective norm and perceived behavior control. The nature of the study is quantitative, and data was collected by questionnaire. After screening, a sample of 390 usable questionnaires proceeds for analysis. To check the proposed hypothesis, structural equation modeling-partial least square (SEM-PLS) was used. Results showed that attitude and perceived behavior control are positively and significantly affected the intentions of consumers towards plastic bag usage. While the subjective norm is found to be insignificant. Furthermore, religiosity as a multi-dimensional construct (i.e. basic religiosity, religious central duties, religious experience, religious knowledge, and orthopraxis) negatively and significantly affected consumers toward plastic bags usage intention as hypothesized. Based on these findings' implications for researchers and marketing managers are also discussed in detail. This study also has future recommendations and suggestions for researchers.

**Keywords:** Pakistan, Plastic bags usage, Theory of Planned Behavior, Religiosity.

## Introduction

The word plastic is derived from a Greek word *plastikos* which means "pliable and easily shaped". Plastic is a material that composes of a wide range of synthetic and semi-synthetic organic compounds such as; vinyl chloride, ethylene, vinyl alcohol, vinyl acetate, etc. These compounds can be molded in various forms like; soft form, slightly elastic form and rigid form (Fried, 1995). Application of plastic can be seen in a different context e.g. construction, electrical goods, electronics, automobiles, furniture, agriculture, packaging, and households (Ilyas, Ahmad, Khan, Yousaf, & Khan, 2018). From the aforesaid context, the application of plastic in household settings in terms of plastic bags (lightweight bags, carryout bags, grocery bags, and shopping bags) is very common (Braddock & Hoffman, 2018). It

has been developed as one of the best items in the late decades and has gained rolling fame among purchasers and retailers (O. Alam, Wang, & Lu, 2018; Smith, 2004). Plastic bags are commonly used for packaging and carrying good because they are bountiful, low-cost to produce, durable, low weight, robust, stress-free to store and carrying (Hodgson, Bréchon, & Thompson, 2018; Sharma, Moser, Vermillion, Doll, & Rajagopalan, 2014).

However where Plastic bags have benefits for consumers, also have major negative impacts on the environment (Asmuni, Hussin, Khalili, & Zain, 2015; Jakovcevic et al., 2014; Madigele, Mogomotsi, & Kolobe, 2017). The excessive use and wastage of disposable plastic bags is a key environmental problem and have a various undesirable effect across the globe (Rivers, Shenstone-Harris, & Young, 2017). Due to their stable chemical structure, plastic bags make very difficult to naturally decompose even take centuries (almost 400 to 1000 years) (Hakkarainen & Albertsson, 2004; Musa, Hayes, Bradley, Clayson, & Gillibrand, 2013). According to Talpur (2018) 11.8% environmental problems are just because of plastic bags. The use of plastic bags become a reason of human health issues (Shahid, 2018), air, water and soil pollution (Asmuni et al., 2015), create littering (Steenstaad et al., 2017) that presents a long-term environment problem (Thomas, Poortinga, & Sautkina, 2016). Another problem associated with plastic bags is that they cause the death of wild and domestic animals (Adane & Muleta, 2009). Moreover, the plastic bags that are thrown in seas and oceans disturb the hormone level of animals when plastic bags pass through their food chain (Musa et al., 2013) which may lead to the death of billions of seabirds and mammals (Ayalon, Goldrath, Rosenthal, & Grossman, 2009; Godman, 2013).

Plastic bags are used around the world estimated at about one trillion annually and 1-2 million bags every minute (Nielsen, Holmberg, & Stripple, 2019). The number of policies and legislation in the form of ban, tax, levies or pricing mechanisms regarding plastic bags has been tripled since 2010 and considered by different developed and developing countries of all continents (Knoblauch, Mederake, & Stein, 2018; Nielsen et al., 2019). Unfortunately, the situation in Pakistan is overwhelming. Plastic bag consumption is increasing day by day as consumers prefer to use plastic bags rather than biodegradable bags, string bags and paper bags (Bilal, Quraishi, Khan, & Ghufuran, 2016). According to Jalil et al. (2013) plastic bags usage is creating environmental problems in a developing country like Pakistan. In accordance with Jalil et al. (2013), it was revealed by Bilal et al. (2016) that plastic bag is posing a wide range of health

and environmental deuteriation in Pakistan. Despite the usage of plastic bags are approximately 55 billion in Pakistan which is increasing by 15% per year (Alvi, 2018), Pakistan is far behind from above mentioned legislations. Only a few cities prohibited the usage of plastic bags due to their harmful effect.

Plastic bags present extortions to the environment and human health, therefore, the reduction of plastic bags is a significant and important challenge that should be undertaken (Arı & Yılmaz, 2017). To undertake this challenge, the psychological determination of plastic bag usage has urged in the developed countries e.g. in the USA (Muralidharan & Sheehan, 2016) Turkey (Arı & Yılmaz, 2017), Sweden (Singh & Cooper, 2017), Japan (Sharp, Hoj, & Wheeler, 2010), UK (Poortinga, Whitmarsh, & Suffolk, 2013) and Portugal (Martinho, Balaia, & Pires, 2017) and studies conducted in the developing countries are limited to Indonesia (Arifani & Haryanto, 2018), China (Sun, Wang, Li, & Zhao, 2017) and Taiwan (Chang & Chou, 2018). Despite the high usage of plastic bags in Pakistan, none of the studies has taken Pakistan under consideration to investigate consumers' plastic bag usage intentions by employing a psychological model.

Understanding human psychology is necessary for marketers and researchers in green consumption behavior to make possible reductions in environmental deterioration and problems. For this purpose, the theory of reasoned action (TRA) and normative activation model (NAM) are widely used in explaining consumers' psychological process but these models are criticized due to its limitations in explaining pro-environmental behavior (Sun et al., 2017). On the other hand, the Theory of planned behavior (TPB) is widely used as a basic theoretical model due to its ability to overcome the limitations of TRA and NAM. To explore the pro-environmental behavior of consumers, TPB is widely accepted and validated (F. Khan, Ahmed, & Najmi, 2019; Kilbourne & Pickett, 2008; Sidique, Joshi, & Lupi, 2010; Sun et al., 2017). Hence, it is reasonable and suitable to select TPB as the basic theoretical model of this research.

Moreover, apart generally acceptance of TPB, theoretical mechanism of this theory can be better comprehended by including different critical constructs in a specific context to increase its explanatory power of individuals intention/behavior and for improvement in the logical intensity of model (Ajzen, 1991; Perugini & Bagozzi, 2001). Religiosity is found to be an important factor in green consumption behavior (Islam & Chandrasekaran, 2016). For instance, (Ali, Danish, Khuwaja, & Sajjad, 2019) and (Ghazali, Mutum, & Ariswibowo, 2018) suggested consumers' religiosity positively affect the

consumer's intentions towards pro-environmental behavior. Because of the protection of the environment and natural resources have also its origins in the guidebook of major religions of the world (Hassan, 2014). Many studies found diverse results from different religions like Hindus, Buddhism, Christians, Jews and Islam (M. N. Khan & Kirmani, 2018). The Islamic approach to environmental stability advocates timely action to preclude the environmental crises (Akhtar, 1996; Razzaq, Ansari, Razzaq, & Awan, 2018). As humans are advised to protect the environment and hold green consumption behavior (Chai & Chen, 2009; Rice, 2006; Stern, Dietz, Abel, Guagnano, & Kalof, 1999). It is also said that if consumers have a more religious affiliation, there is more chance to be involved in ecological consumption behavior (Harizan & Rahman, 2017; Hassan, 2014; Islam & Chandrasekaran, 2015, 2016). So, in the context of Plastic bags, it can be said that if a person is more religious than there is less chance or negative intention to use Plastic bags due to its environmental problems and degradation. The above arguments, motivate the researcher to conduct a study on environmentally conscious consumption with the perspective of religion as there are none of the studies that focus the religiosity as a predictor of intention to use Plastic bags.

## Literature review and hypothesis development

### Theory of planned behavior

TPB suggests three main predictors of intentions i.e. Attitude, subjective norm and Perceived behavior control (Ajzen, 1991). Attitude is defined as an individual's favorable and unfavorable assessment toward a specific behavior. subjective norms stated as consumers show favorable and unfavorable behavior to perform the specific task due to social influence or pressure. while perceived behavior control can be defined as "an individual's perceived ease/difficulty in implementing a certain behavior". Theory of planned behavior has been used in different domains and several research efforts have been supported (Gadenne, Sharma, Kerr, & Smith, 2011; Millock & Nauges, 2010; Reyes-menendez, Saura, Palos-sanchez, & Alvarez-garcia, 2018). Moreover, Ajzen, (1991) suggested that the prediction power of intentions in a specific context can be increased for understanding a conceptual mechanism. For this purpose, theory can be deepened and broadened to get greater variance proportion of total variance in intentions (Perugini & Bagozzi, 2001). Therefore, in the plastic domain, many researchers adopted an extended theory of planned behavior to increase its explanatory power. That's why this research broadened the TPB by including religiosity as an additional construct because the impact of religiosity in plastic bags usage

intention has not been checked as per the researcher's best knowledge. Moreover, Tan et al. (2017) suggested that to study consumers' intention of using plastic bags, TPB provides a valuable framework and its explanatory power enhanced by a combination of new variables that affect these intentions. So, this study is using the extended TPB model to understand consumers' intentions towards plastic bag usage.

### Attitude

Attitude is defined as the individual's favorable and unfavorable assessment toward a specific behavior (Ajzen, 1991). It is basically associated with behavior beliefs and outcome evaluations. Attitude is designed by different factors like affection (emotions), values (beliefs) and cognition (thought) toward a specific object (Hoyer & MacInnis, 2004). These individuals' state of mind towards action is shaped as a reaction to specific judgment (Schwarz, 2006). That's why, it is considered as the main component in predicting intentions of consumers and have positive relationships that are supported by different previous researches (Ajzen, 1991; Ramayah, Wai, Lee, & Lim, 2012). Moreover, (Sun et al., 2017) suggested that attitude toward plastic bags usage is the emotional reaction which is originated from consumer's assessment. It is also said that due to convenience and costless characteristics, individuals will have a favorable attitude towards plastic bag usage and they have the intention to use. So, it can be hypothesized that

**H1. Attitude towards plastic bags usage positively affects consumers' intention to use plastic bags.**

### Subjective norm

Subjective norm is defined as the consumers shows favorable and unfavorable behavior to perform the specific task due to social influence and pressure (Ajzen, 1991). Social pressure can be seen in the form of pressure from family, friends, peer groups, etc. (F. Khan et al., 2019). Individuals like to behave according to their social group liking or disliking who are important to them. As consumers involve themselves in green consumption behavior for the sake of social identification from their social group (Ali, Danish, et al., 2019). According to, the subjective norm is considered as an important component in determining plastic waste recycling intentions. Previous studies also found a positive association of subjective norm and usage intentions (Chow & Chen, 2016; Swaim, Maloni, Napshin, & Henley, 2014; Tarkiainen & Sundqvist, 2009; Tsarenko, Ferraro, Sands, & Mcleod, 2013). So, in plastic bag consumption behavior, it can be hypothesized that

## **H2. Subjective norm positively affects consumers' intention to use plastic bags.**

### **Perceived behavior control**

In TPB, another major element is perceived behavior control (Chang & Chou, 2018). It is defined as “an individual's perceived ease/difficulty in implementing a certain behavior” (Ajzen, 1991). Previous studies verified the impact of perceived behavior control on behavioral intentions of consumers (Moser & Moser, 2015; Nuttavuthisit & Thøgersen, 2015; Teng, 2012). In the plastic bags domain, it refers to peoples' perceptions about available resources like; easy availability, cost reduction, easy to handle plastic bags (Hodgson et al., 2018). The control of the individual over his/her activities also affects the intentions towards plastic recycling intentions (F. Khan et al., 2019). The recent research found significant results of perceived behavior control toward plastic bags usage intention (Sun et al., 2017). So, in the context of plastic bags, it can be supposed that when consumers have abilities, resources and opportunities to use plastic bags they will intend to use them. Therefore, it is hypothesized that;

### **H3. Perceived behavior control positively affects consumers' intention to use plastic bags.**

### **Religiosity**

Religiosity is defined as “the degree to which beliefs in specific religious values and ideals are held and practiced by an individual” (Delener, 1990). Religions tell the guidelines or values to live in this world. These guidelines shape human behavior as it tells the living pattern, choice preferences, association with others and what to eat (Islam & Chandrasekaran, 2016). These religious values are very personal in nature and shape the consumption behavior of individuals (Hassan, 2014). This consumption pattern differs for a different religious group like green consumption or eco-friendly consumption (Siyavooshi, Foroozanfar, & Sharifi, 2019). Muslims are considered vicegerent of Allah on earth and they have the responsibility to save resources, protect others and do not damage the environment. The relationship between green consumption and religiosity has been found significant by many researchers (Harizan & Rahman, 2017; Hassan, 2014; Islam & Chandrasekaran, 2016; M. N. Khan & Kirmani, 2018; Siyavooshi et al., 2019).

Although religiosity is considered a one-dimensional concept (Hassan, 2014; M. N. Khan & Kirmani, 2018) but some of the researchers suggested it as a multidimensional concept (El-Menouar, 2014; Glock, 1962; Ismail, 2018; Souiden & Rani, 2015). Therefore, in our model religiosity

is also second-order variable composed of basic religiosity, central religious duties, religious experience, religious knowledge, and orthopraxis. The basic religiosity describes the foundation of Islam like belief on Allah, Quran, last Prophet, jinn and angels, etc. It contains belief, devotion, and sense of omnipresence (Allah is present everywhere at the same time). It is the dimension that represents the basis of Muslims in general and on an individual level. It also differentiates between believing and non-believing Muslims (Baig & Baig, 2013; El-Menouar, 2014). Central religious duties describe the five pillars of Islam arranged by religion such as prayer, hajj, fasting, etc. and some additional norms like; the habit of prayer, the journey of Mecca, fasting in the Ramadan, and dietary rules. It is the dimension of religiosity on a collective level and differentiates between Muslims on behalf of practicing or not practicing (Ansari, 2014; El-Menouar, 2014). The religious experience dimension describes the overall beliefs associated with a religion like Allah communicate with oneself when we pray and Allah reward on the basis of good deeds or punish on the basis of bad deeds of individuals. These rewards or punishment can be in the form of Jannah and Jahannam respectively (El-Menouar, 2014; Farrag & Hassan, 2015). Religious knowledge refers to an individual's knowledge of Islam. Assessment of knowledge can be observed through the contents of the Quran, contents of Sunnah (knowledge about the life of the prophet and action performed by him and Islam in general. These are the main sources of knowledge (El-Menouar, 2014; Rehman & Shabbir, 2010). The Orthopraxis dimension describes the importance of religion in activities of daily life follow Islamic norms like not shake hands with the opposite gender and not to listen to music. It contains strict religious norms observance like; the relationship of opposite gender before marriage. Islam generally stresses orthopraxy (practices) over orthodoxies (belief). On the other hand, Muslims should not just believe these norms but there should practice these norms of Islam (Aji, 2017; El-Menouar, 2014).

It is said that when individuals are religious they will have a high concern for the environment and use environmentally friendly products. Now, it can be supposed that in the context of plastic bag usage, when individuals are more religious, they will not use plastic bags. Same as when individuals are less religious they will use plastic bags. So, it can be hypothesized that

H4. Religiosity negatively affects consumers' intention to use plastic bags.

## **2. Methodology**

### **Participants and Procedure**

The respondents in this study were Pakistani university students that were enrolled in Islamia University Bahawalpur, Bahauddin Zakariya University Multan, University of Sahiwal, University of Agriculture Faisalabad and the University of Sargodha. These universities are located in major cities of Pakistan i.e. Bahawalpur, Multan, Sahiwal, Faisalabad and Sargodha (Ali, Danish, et al., 2019). Peterson (2001) and Calder et al. (1981) suggested that in order to minimize the likelihood of error being inflated due to situational factors (i.e. age, education, and income) in diverse samples, could be reduced by collecting data from a homogenous group (e.g. college or university students). Hence, university students were selected as target respondents. It was not possible to target all the departments of the above-mentioned universities; therefore, researcher of the intended study has target students of the department of management science by employed non-probability (purposive) sampling technique. This sampling technique is extensively used in behavioral intention studies (Ali, Danish, et al., 2019; Ali, Ullah, Akbar, Akhtar, & Zahid, 2019). According to Roscoe et al. (1975) as cited in Sekaran and Bougie, (2009), suggested that an appropriate sample size should be more than 30 and less than 500 samples. Nulty (2008) indicated that the response rate of questionnaires in survey research is 40% to 60%. Following Nulty (2008) recommendation, consequently,

650 questionnaires were distributed, in which 424 were returned and finally after primary screening 390 usable questionnaires representing 59.69 percent valid response rate could be used for analysis. According to Babbie (2007), in the review of social research literature suggests “that a response rate of at least 50% is considered adequate for analysis and reporting, a response of 60% is good; a response rate of 70% is very good.” Hence, in this research 59.69 valid response rate was satisfactory. Characteristics of respondents are discussed in table 1.

### Measures

Attitude towards plastic bags usage intention was measured by adapting five items from (Sun et al., 2017; Taylor, S., & Todd, 1995). Subjective norm was measured by adapting four items by (Tan et al., 2017; Taylor, S., & Todd, 1995). Four items for measuring perceived behavioral control were adapted from previous studies (S. S. Alam et al., 2014; Sun et al., 2017). Religiosity about the intention to use plastic bags was operationalized using sixteen items adopted from (El-Menouar, 2014). Lastly, the intention to use plastic bags was measured by six items adapted from (Taylor, S., & Todd, 1995; Wang, Zhang, & Li, 2014). All scales were measured on a seven-point Likert scale: 7 (strongly agree), 6 (agree), 5 (agree somewhat), 4 (Neutral), 3 (disagree somewhat), 2 (disagree), 1 (strongly disagree).

**Table 1: Characteristics of Respondents**

	Characteristics	Frequency	Percentage
<b>Gender</b>	Male	223	57.2
	Female	167	42.8
<b>Age</b>	18-21	118	30.3
	22-25	143	36.7
	26-29	84	21.5
	30-over	45	11.5
<b>Education level</b>	undergraduate	185	47.4
	Graduate	152	39.0
	Postgraduate	53	13.6

## Results

SEM is an advantageous statistical technique in terms of accuracy, efficiency and convenience for the assessment of hypothesis and constructs measurements (Malhotra, Kim, & Patil, 2006; Richter, Cepeda-Carrion, Roldán, & Ringle, 2015). In this study, Smart-PLS 3.0 was employed to conduct data analysis by following two-stage analytical procedures (Anderson & Gerbing, 1988). Initially, the measurement model was tested followed by the assessment of the structured model (Anderson & Gerbing, 1988; Byrne, 2013).

### Measurement Model

In assessing measurement model adequacy, reliability test and validity test will be examined. Indicator reliability was

measured by using outer loadings while internal consistency reliability was examined through composite reliability. Moreover, convergent validity was assessed through the average variance extracted (AVE) (Hair jr, Hult, Ringle, & Sarstedt, 2016). To ascertain, indicator reliability, the outer loadings exceeded the suggested value 0.50 (Hair, Sarstedt, Hopkins, & Kuppelwieser, 2014), composite reliability surpassed the threshold value of 0.70, and average variance extracted exceeded the recommended value of 0.50 (Anderson & Gerbing, 1988). As mentioned in table 2 (figure 1), all outer loadings were found to be above the threshold values, composite reliability (CR) values were greater than 0.70 and average variance extracted (AVE) scores were found greater than 0.50.

**Table 2: Measurement Model**

First-order construct	Second-order construct	Items	Loadings	AVE	CR
<b>Attitude</b>		Att1	0.697	0.562	0.836
		Att2	0.658		
		Att3	0.824		
		Att4	0.805		
<b>Subjective Norm</b>		SN1	0.792	0.635	0.874
		SN2	0.837		
		SN3	0.834		
		SN4	0.719		
<b>Perceived Behavior Control</b>		PBC1	0.796	0.660	0.886
		PBC2	0.855		
		PBC3	0.839		
		PBC4	0.756		
<b>Basic Religiosity</b>		BR1	0.725	0.511	0.807
		BR2	0.672		
		BR3	0.724		
		BR4	0.735		
<b>Central religious duties</b>		CD1	0.765	0.663	0.855
		CD2	0.849		

		CD3	0.827			
<b>Religious experience</b>		EXP1	0.803	0.669	0.858	
		EXP2	0.858			
		EXP3	0.791			
<b>Religious knowledge</b>		KN1	0.819	0.695	0.872	
		KN2	0.857			
		KN3	0.825			
<b>Orthopraxis</b>		ORTHO1	0.767	0.654	0.850	
		ORTHO2	0.826			
		ORTHO3	0.831			
	Religiosity	BR	0.761	0.509	0.805	
		CD	0.812			
		EXP	0.768			
		KN	0.696			
		ORTHO	0.520			
<b>Plastic bags usage intention</b>			PBUI1	0.704	0.556	0.834
			PBUI2	0.765		
			PBUI3	0.769		
			PBUI4	0.745		

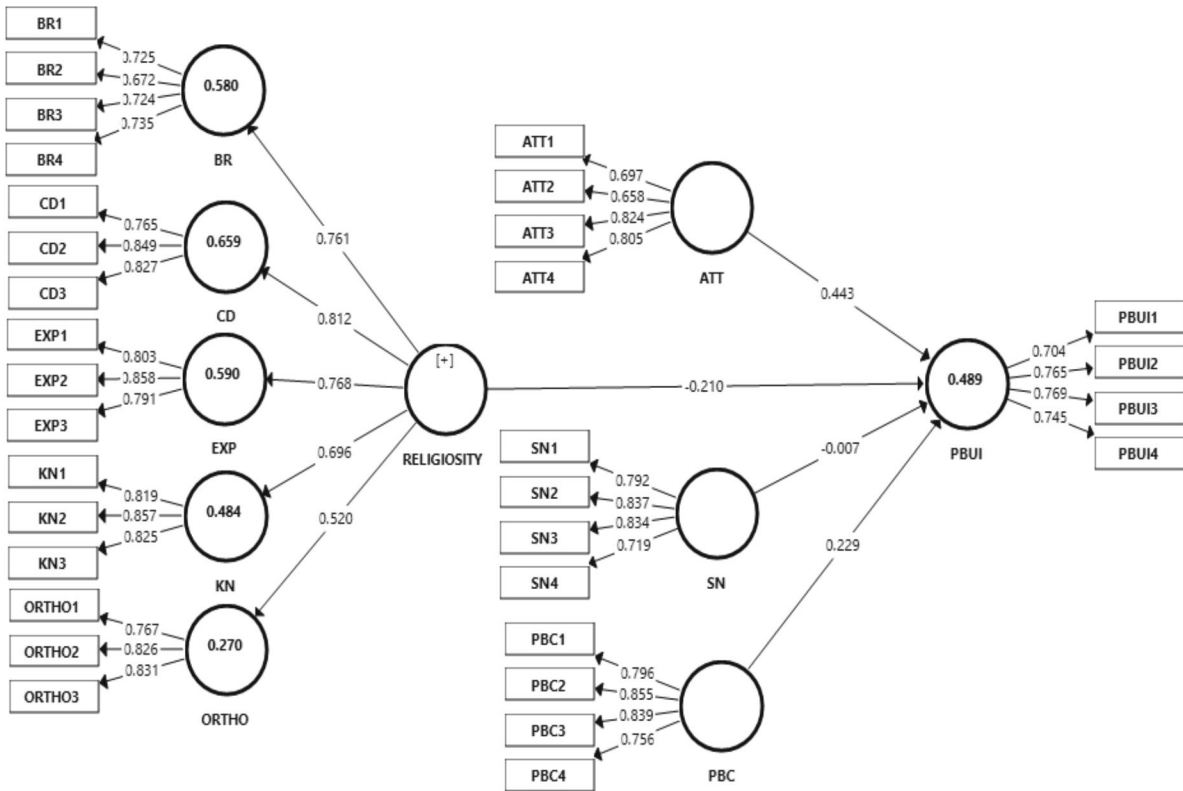
Next, discriminant validity was examined using the Heterotrait-Monotrait ratio of correlations (HTMT), which is considered superior as compared to other methods. Kline, (2015), suggested the HTMT threshold value of 0.85, whereas, according to Gold, Malhotra, et al. (Gold,

Malhotra, & Albert, 2001), HTMT values must be less than 0.90. If the HTMT value close to 1 then it shows that discriminant validity has not been ascertained. As shown in Table 3, All values of HTMT is lower than the threshold value of 0.90(Gold et al., 2001).

**Table 3: Discriminant validity (Heterotrait-Monotrait (HTMT) Criterion)**

	ATT	BR	CD	EXP	KN	ORTHO	PBC	PBUI	SN
<b>ATT</b>									
<b>BR</b>	0.351								
<b>CD</b>	0.302	0.760							
<b>EXP</b>	0.356	0.516	0.847						
<b>KN</b>	0.241	0.468	0.431	0.473					
<b>ORTHO</b>	0.125	0.353	0.233	0.288	0.639				
<b>PBC</b>	0.731	0.420	0.377	0.360	0.267	0.100			
<b>PBUI</b>	0.698	0.385	0.560	0.531	0.285	0.093	0.645		
<b>SN</b>	0.763	0.454	0.384	0.308	0.237	0.150	0.725	0.525	

**Figure 1 Measurement Model (PLS algorithm)**



**Structured Model**

In assessing the structured model, firstly, it is essential to consider the collinearity issue in the structured model. The variance inflation factor (VIF) for all the independent variables ranged between 1.176 to 1.824 (Table 4) which is less than the suggested threshold value of 5, which indicates that collinearity is not a concern in this model (Hair jr et al., 2016). To assess the goodness of the structured model, Hair jr et al. (2016) suggested that considering the significant level of path coefficient (B), corresponding t-values and the values of coefficient of determination (R<sup>2</sup>). They also recommended that, moreover, to these primary measures, scholars should report the effect size (f<sup>2</sup>) and predictive relevance (Q<sup>2</sup>). To generate statistical significance level of path coefficient and their corresponding t-values, the PLS-SEM algorithm followed by bootstrapping (i.e. resampling 5000) procedure was run on the full model. All proposed hypotheses developed in this study were directional. Hence, one-tailed test was applied, threshold t-values for one-tailed test was 2.33 (p < 0.01), 1.645 (p < 0.05), and 1.28 (p < 0.10). The results reveal that attitude, PBC

positively and religiosity are negatively affecting the intentions, but the subjective norms are found to be significant explained in table 5. The coefficient of determination (R<sup>2</sup>) value 0.489 reveals that 48.9% of the variance in endogenous construct (plastic bags usage intention) can be explained by attitude, subjective norm, perceived behavioral control and religiosity. In terms of explanatory power, the R<sup>2</sup> value 0.489 is considered substantial because it reaches a substantial level of explanatory power 0.40 suggested by Cohen (1988). The effect size (f<sup>2</sup>) which indicates the impact of specific predictor construct on an endogenous construct was carried out as suggested by the Cohen, (1988) guidelines which deemed 0.02 small, 0.15 medium and 0.35 large effects respectively are presented in Table 4. To examine predictive relevance (Q<sup>2</sup>) of the model, the blindfolding technique was used (Geisser, 2014). Table 5 indicates that the value of Q<sup>2</sup> is greater than 0 as suggested by Hair jr et al., (2016), indicating that the PLS path model has predictive relevance.



**Table 4: Collinearity Assessment**

Constructs	VIF
Attitude	1.723
Subjective norm	1.807
Perceived behavior control	1.824
Religiosity	1.176

**Table 5: Structural Model Analysis (Hypothesis Testing)**

	Path coefficients	SD	t-value	P Values	Supported	R <sup>2</sup>	Q <sup>2</sup>	F <sup>2</sup>
ATT -> PBUI	0.443	0.052	8.512	0.000	yes	0.489	0.222	0.223
SN -> PBUI	-0.007	0.052	0.127	0.450	Not			0.00
PBC -> PBUI	0.229	0.053	4.340	0.000	yes			0.056
RELIGIOSITY -> PBUI	-0.210	0.047	4.423	0.000	yes			0.073

### Discussion and Conclusion

The aim of this study is to find the intentions of Muslim consumers towards plastic bag usage intention. For this purpose, the theoretical foundation is taken from TPB which describes that attitude, subjective norm, and perceived behavior control are predictors of intentions. Moreover, TPB is extended by including religiosity in this model due to its significance in eco-friendly behavior. The results of SEM show that three out of four hypotheses are accepted, and religiosity has the highest negative impact on plastic bags usage intention. The results indicators and possible reasons for these results are discussed further.

Attitude refers to consumer's favorable/unfavorable perception regarding a specific behavior. the result

suggests that attitude has positive and significant effect on plastic bag usage intention of Pakistani consumers with (Beta= 0.443, t=8.512>1.64, P<0.05.). This can be due to easy availability and usefulness of plastic bags in the market. As Chang & Chou (2018) pointed out that despite knowledge and understanding about environmental problems, consumers are still consuming plastic bags due to their functional benefit and stress-free access. This positive association of attitude and intention to use plastic bags can be shifted towards sustainable consumption and environment protection by government initiatives. The government should communicate the negative impact of plastic bags through introducing courses in colleges and universities, etc. Further, Plastic bags usage can be reduced by communicating and giving awareness through various

channels like advertisement and promotion about the negative impacts of plastic bags such as; marine and wildlife damage, environmental pollution and human health issues. Moreover, the usage of string bags, cloth bags, recycled plastic bags, and shopping carts/baskets should be encouraged.

Subjective norms refer to performing a specific behavior by association with a social group or social pressure. The result shows that subjective norms do not have a positive effect on the intentions of consumers with (Beta= -0.007,  $t = -0.127 < 1.64$ ,  $P > 0.05$ ). This means due to social group association, pressure and peer influence, consumers unlike to use plastic bags. The possible reason for the result is that we are living in a society that is based on collectivism. According to Hofstede's culture dimension (collectivism), people make their decisions by their influential groups. In Pakistan, People prefer to perform the task according to social preference. Consumers are motivated to involve in green consumption behavior if their environmental behavior is appreciated by others (Kumar & Ghodeswar, 2015). They feel hesitate to decide by themselves alone. In this regard, a hype of social media campaigns can be created to motivate consumers to use eco-friendly bags through the generation of e-WOM by different social groups.

PBC refers to the degree of control by an individual having on his/herself. It basically depends upon how easy or difficult to perform a behavior can be and self-control over it. PBC has shown significant and positive affect toward plastic bags usage with (Beta= 0.229,  $t = 4.340 > 1.64$ ,  $P < 0.05$ ). The probable cause of this result can be that retailers and shopkeepers provide plastic bags without any cost. So, like other eco-friendly bags, there should be charges for plastic bags by retailers. Moreover, the government should involve strict policies like; bans, tax, levies pricing mechanism and fee on plastic bags usage at supermarkets or retail stores to reduce the use of plastic bags. With these usage restrictions, the government should develop a reward system initially to encourage consumers to reduce plastic bag usage. because it is found in Pakistan the nature of people is different and people want some rewards over their eco-friendly activities like recycling the plastic bags waste (F. Khan et al., 2019).

Religiosity can be a degree to which some specific beliefs in religious values are held and practiced by individuals. As hypothesized, the result suggests that religiosity negatively and significantly influences the consumer intentions to use plastic bags with (Beta= -0.210,  $t = 4.423 > 1.64$ ,  $P < 0.05$ ). The results are in agreement with previous researches on ecological consumption behavior and religiosity (Harizan & Rahman, 2017; Hassan, 2014; Islam & Chandrasekaran,

2016). We found that there is merit in analyzing religiosity as a multi-dimensional construct i.e. basic religiosity, central religious duties, religious experience, religious knowledge, and orthopraxis. In light of these findings, marketers should pay more attention to religiosity as a multi-dimensional concept in eco-friendly campaigns. These results can be due to the strong association of Muslims with their religion. Huaibin (2014) suggested that Muslims prefer to show their identification by their religion (Muslims) rather than Pakistani as compared to western countries where people show themselves by their nationality. Islam has a strong influence on the life of Muslims as any act according to religion considered worship. Islam addresses Muslims to protect the environment and care for all living creatures. As, Allah said in the Quran to protect all living bodies in the earth involving birds, animals, and other human beings. As they are the other communities who are sharing the earth with us for spending their life.

"There is not an animal that lives on the earth, nor a being that flies on its wings, but they form communities like you. (Quran 6:38)

The above verses clearly describe the protection of animals. The harmful effect of plastic bag usage in marine and wildlife animals make the religious consumer think about their consumption pattern. That's why they don't like to use plastic bags. As everything is set in order by Allah.

"Who made all things good which He created" (32:7). And "we are commanded to keep it that way: Do no mischief on the Earth, after it hath been set in order" (Quran, 7:56).

Moreover, Allah not only advised Muslims to be responsible but humble, kind, obedient and disciplined in every aspect of their life. These qualities are portrayed by the following five pillars of Islam. Muslims are advised to keep balance in their daily life. This balance prevents the consumer from excessive consumption and causes a reduction in waste generation.

Moreover, Muslims are growing rapidly than any other religion and expected to be the second-largest religion all over the world by 2050. Muslims will surpass the Jews in the USA and will be 10% of Europe population till 2050 (Pew research center, 2017). These stats make the Muslim community an important segment for marketers. Even though Islam has guided humans to protect holy earth and its creature there is a need for awareness, knowledge of environmental protection and sustainable consumption. So, practitioners can involve Islamic preaching's in their media campaigns to use eco-friendly bags. A proper message, having few verses from the Quran, can be conveyed through integrated marketing communication

channels.

### Limitations and future research directions

Although this study has some interesting findings and implications, there are still some limitations to our research. Firstly, this study focuses only on the intention to use plastic bags rather than actual behavior. So, the future study can be conducted to check the actual behavior as there is a gap in intentions and actual behavior. Second, this study only used plastic bags usage for their research. Intentions towards other plastic items like plastic containers, bottles, can be checked. Thirdly, this study extends the theory of planned behavior by adding religiosity which is an important factor in determining or making consumers decisions toward purchasing or usage. There are many other factors or variable like culture should be added to conduct further research. Fourth, this study only focuses on Muslim consumers. Further studies can consider other religions like Christians Hindus, Jews, and Buddhism.

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