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Measuring Working Women's Demand for Eco-Friendly Food Packaging in Bangladesh

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Abstract

The study aims to test the "Theory of Planned Behavior" (TPB) by measuring the buying behavior (demand) for food in eco-friendly (green) packaging among women professionals in Bangladesh. As one of the most densely populated countries in Asia and the Pacific with an urban growth rate of 3.6%, Bangladesh is overwhelmed with environmental problems. The most visible is waste, particularly in its urban areas full of Municipal Solid Waste (MSW). Due to the increasing awareness by the customers of the harm caused to the environment by packaging materials, companies must address this issue. Globally, over three billion people live in cities and buy their groceries away from home – many of these products come packaged, mostly in disposable plastic containers. This paper analyzes the green buying pattern among professional female employees interested in green packaging to preserve the environment and the public health. One hundred female employees participated in a structured survey, based on random sampling, and responded to questions on a 5-point Likert Scale. The study used the Partial Least Squares (PLS) method, which is a variance-based technique for the analysis of data using a structural equation model. The outcome of this study shows that environmental attitude and perceived behavioral control positively influences purchase intentions among women. The results of the study serve as a benchmark for food manufacturers and marketers. It encourages them to comply with the 3R (Reduce, Reuse, Recycle) strategies to comply with the UNDP's Sustainable Development Goal (SDG) by 2030. The findings and recommendations of this study support the growing emphasis on Sustainable Production and Consumption (SCP) and the commitment of the Government of Bangladesh to the SDGs.

1 Introduction

This decade has seen a dramatic shift in environmental awareness worldwide. The environmental impact of packaging waste has been widely discussed (Wever, 2011), but the past decade has seen a renewed interest in green packaging (Svanes et al., 2010; Rundh, 2005).

Today, one-third of household waste consists of food packaging (Packaging Strategies, 2017). Recently, a huge amount of litter was found floating in the Pacific Ocean – with an area equal to twice the size of continental America. Most of this island of solid waste is made of disposable plastic food packaging containers and plastic bags. A majority of the world's population live in cities with few options for growing their own food. Three and a half billion people in the planet's cities buy their food away from home–and these products (a large portion of which is food or groceries) come packaged. Herein lies the importance of green or eco-friendly packaging of food items, in which urban consumers can play a more responsible role since the large cities have a greater variety of stores and a wider selection of products (Raziuddin & Vaithianathan, 2018). A survey by Hower (2015) reveals that "more than three-quarters of consumers[1] claim that eco-friendly packaging has an influence on the beverage brand they purchase." Across countries included in the survey, environmental factors are found to exert considerably strong influence on brand choice in developing markets like China, Turkey, Brazil, and India compared to developed nations like UK, USA and Japan. A large majority of businesses consider environment as part of their business strategy, and using eco-friendly reusable materials as packaging materials is becoming a key focus for businesses. Interestingly,

[1] The global survey was carried out for food processing and packaging solutions firm Tetra Pak among 6,000 consumers across 12 different countries.

environmental factors were found to be "a bigger influence for more businesses in developing countries" like Brazil, Turkey, and India, than in developed nations such as UK, USA and Japan. In developing countries, roughly 60% of those surveyed say they actively look out for environmental information when thinking about a purchase, compared to only 25% in the developed countries (Ward, 2017).

Consumers are increasingly concerned about the environment, and believe that environmental protection is not a responsibility of the government alone, but also their responsibility as consumers (Martinez, 2006). Firms have introduced green packaging based on the recommendations of the recyclable and reusable packages industry (Jamal, Islam & Barua, 2016). In a survey in the UK, green packaging was an influential driver of demand for food items (Haigh, 2018). Lately, researchers have expanded the field of sustainability studies by focusing on the drivers of the eco-friendly purchasing behavior of customers in developing countries (Mair & Laing, 2013). Therefore, a study of Bangladesh will better facilitate an understanding of the factors behind consumers' green buying behavior.

Sustainable green packaging has a measurable impact on the environment and public health. Proper packaging allows protection of food from physical, chemical and microbiological contamination. It also plays a vital role in preserving food quality, minimizing food waste and reducing the use of preservatives. In Bangladesh, the average per capita plastic consumption is 5 kg per year (Mosharraf, 2018), a significant source of which is food packaging.

This study is in line with past studies related to environmental sustainability in Bangladesh. However, this study makes a few new contributions to the literature. First, this research is based on the extended Theory of Planned Behavior (TPB) model. It breaks down the Perceived Behavioral Control (PBC) into two dimensions --the external PBC and the internal PBC, and examines their distinct influences. Second, this study focuses exclusively on the eco-friendly packaging for consumer food products in Bangladesh. Third, the participants in this study are female employees who work in corporations, and are presumably the most suitable segment of buyers who can add to our understanding of the significance of green packaging of food items (Jahanshahi & Jia, 2018).

1.1 Research Problem

Human activities such as industrialization, urbanization, and improving living standards are responsible for waste products. As the ninth most populous, and the twelfth most densely populated country in the world, Bangladesh has experienced an increasing rate of waste generation, which is projected to reach 47,064 tons per day by 2025 (Islam, 2016). Bangladesh's urban growth is among the highest in South Asia, and is 2.5 times higher than the population growth rate of 1.42% (Atienza, 2017). Given this rapid economic growth, fast transforming its age-old agricultural economy into an urban-industrial economy (Atienza, 2017), Bangladesh faces environmental challenges on many fronts. The most visible is physical waste, particularly in urban areas. As we know, urbanization has a positive impact on the national GDP per capita (Table 1).

The economic growth is associated with a proportionately generated Municipal Solid Waste (MSW) throughout the country (Table 2), much of which can be traced to packaging, particularly food packaging.

"Packaging not only contributes to environmental problems through packaging material production and waste management but also affects other key environmental issues, such as product waste rates and logistical efficiency" (Svanes et al., 2010). As consumers are becoming more environmentally conscious, Nomacorc (2008) has identified environmental concerns of the food industry, which the packaging companies must respond to.

According to Rasheed (2013), some businesses in Bangladesh have been quick to adopt "environmental management systems and waste minimization" and have integrated environmental issues into their organizational activities. Civil societies are now launching environmental campaigns, including *Buriganga Bachao Andolon*, Campaign Against Air Pollution, and Campaign Against Polythene, which was conducted by BAPA (*Bangladesh Poribesh Andolon*). BAPA also organized *Sundarban Bachao* Conference and Environmental Health Conference. Some of these campaigns have succeeded. However, studies on pro-environment consumer behavior are still at an early stage for emerging markets. No significant formal research has been conducted to understand the green purchase behavior of Bangladeshi consumers (Jamal et al, 2016) particularly from the perspective of female consumers. Biswas and Roy (2015) call for "new research efforts to examine the progression of pro-environmental consumer behavior in the Asian region" (p. 467).

The objective of this study is to analyze factors, which influence the green buying behavior of women professionals toward food with eco-friendly packaging. The study applies the Extended Theory of Planned Behavior (TPB) (Ajzen, 1991) framework, considered among the most persuasive theories in understanding consumer behavioral intentions (Kidwell & Jewell, 2003). This study will recommend facilitating green buying behavior in Bangladesh.

This first part of the paper presents the research problem and objectives, followed by a review of the literature. The research method, results and discussions are presented subsequently. The paper concludes with implications for consumer food products and recommendations to increase green packaging of food items to achieve sustainable development in Bangladesh.

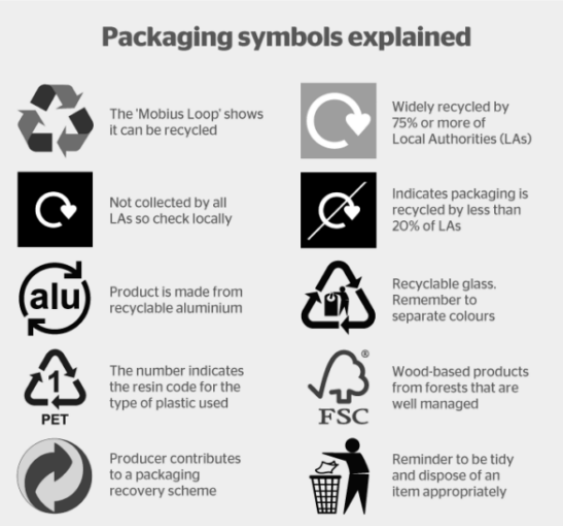
1.2 What is green/eco-friendly food packaging?

Orzan, Cruceru, Bălăceanu and Chivu (2018) emphasize packaging as one of the most important aspects of food, since well-packed food contributes to consumer safety and protection. According to Carlson (2009), eco-packaging must be safe and healthy for both individual and the community. Such packaging is market-efficient, cost-effective and recyclable to add to the energy supply. Seo et al. (2016) highlight that packaging materials have been identified as a major source of pollution in recent years. Hence, there is a greater need for eco-friendly packaging. Packaging has changed radically given the consumer's unlimited access to information (Sandu, 2014). Ottman (1993) and others believe that products packaged in an eco-packaging manner are considered more valuable by the consumer.

Global brands are increasingly looking for ways to redo their product packaging in response to environmentally conscious consumers. Coca-Cola recently took a social stance with its new "World without Waste" vision, which is a plan to collect and recycle every bottle/can it sells. PepsiCo North America is also aiming to design 100% of its global packaging to be recyclable, compostable or biodegradable by 2025[2]. Several regions in Europe have proposed and/or implemented restrictions on plastic bags. This gradual transformation toward green packaging by the leading global food and beverage companies is expected to significantly affect green packaging of food globally.

Today, step-by-step guidelines are available to food manufacturers to transform their processes to eco-friendly packaging (Figure 1). Consumers can learn more about the benefits of green packaging (Figure 2), given the eco-friendly packaging are becoming more common. Consumers can increase their awareness of various recycling options such as biodegradable and compostable, by understanding the symbols (Haigh, 2018).

Figure 1. Choosing sustainable packaging



Source: https://www.dssmithepack.co.uk/blog/sustainable-packaging/sustainable-packaging-millennial-consumer/

Figure 2. Packaging symbols

Source: https://www.packaginginsights.com/news/recycling-symbols-are-confusing-uk-consumers-research-group-notes.html

[2] https://packagingeurope.com

2 Literature Review

"Green marketing" refers to environmentally safe marketing strategies, or those that create no threat to the environment (Jamal et al, 2016). Mishra & Sharma (2010) highlight several aspects of green marketing, which includes product modification, packaging, and advertising. This section addresses the current state of research on green buying behavior in Bangladesh to explore where the gaps still exist. Hafez (2017) conducted a study to find more about Bangladeshi consumers' green purchase behavior and identified factors, which motivate the purchase of energy-saving lamps. They find that eco-friendly packaging leads to increased demand for energy-saving lamps. They find that awareness of green products is a critical factor, which significantly influences consumers' purchasing decisions in Bangladesh (Siddique & Hossain, 2018). Hossain (2016) recommends finding additional systematic strategies to recycle paper, metals, and plastics in an environmentally harmless manner.

However, most of these studies focus on green marketing and green product awareness from the perspective of customers. Our study looks at green buying behavior toward eco-friendly packaged consumer food products from the perspective of working women in urban corporate setting. This study attempts to fill the gap in existing literature on the subject for Bangladesh.

2.1 Theoretical Framework

The TPB model improves the predictability of the purchase intention model (Jebarajakirthy & Lobo, 2014) for green products. This model has been validated in several studies investigating recycling behavior (Davis et al., 2009; Oreg & Katz-Gerro, 2006) and green purchase intentions (Chen & Tung, 2014; Zhou et al., 2013). Sustainable consumer behavior can be explained using a number of models. This model is based on the TPB employed by various scholars to predict and explain recycling behavior (Chan & Bishop, 2013), sustainable consumption (Richetin, 2012) or the personal vision of sustainable development. This study constructs the framework for TPB, which captures how attitudes, subjective norms and perceived behavioral control contribute toward consumers' intentions and behavior.

Environmental attitude has been defined as the collection of beliefs and behavioral intentions regarding environmentally related activities (Frick, Kaiser & Wilson, 2004; Milfont & Duckitt, 2004). The positive association between the attitude of the customers and their buying has been found in environment-related behaviors (Diamantopoulos, Schlegelmilch, Sinkovics & Bohlen, 2003; Alwitt & Pitts, 1996). Specifically, in green products, a positive relationship between attitude and behavioral intention has been established across many cultures (Mostafa, 2009). For instance, in the choice for organic food, scholars find a strong positive relationship between attitude and intention (Ha & Janda, 2012; Zhou et al., 2013), determining that attitude-intention rationale prevails in the green consumption settings. Likewise, Birgelen et al. (2009) observe that consumers prefer eco-friendly beverage packaging if they have a positive attitude toward the environment.

The intention to purchase green products indicates the extent to which consumers will purchase green products or adopt green alternatives (Paul, Modi & Patel, 2016). Consumers' intention to buy green products is higher when they know their spending choices would contribute to sustainable development and environmental protection (Moser, 2015).

H1: Environmental attitude influences the green purchase intention of urban professional women toward eco-friendly packaged food products.

According to Baker, Al-Gahtani and Hubona (2007), subjective norm refers to "the individual's perception of significant referents' opinions toward a behavior." In marketing and consumer behavior, several studies have documented subjective norm as an important determinant of intention, including intention to participate (Lee, 2005), technology-use intention (Baker et al., 2007), organic food purchase intention (Ha & Janda, 2012), green hotel revisit intention (Chen & Tung, 2014; Han et al., 2010) and environmentally conscious consumption (Khare, 2015; Moser, 2015). Therefore, it is expected that consumers are more likely to adopt group behavior such as the purchase of green products, considered critical in predicting positive intention (Wilson, 2004; Alwitt & Pitts, 1996) toward pro-environmental behavior of working women in Bangladesh.

H2: Subjective norm influences the green purchase intention of the urban professional women toward eco-friendly packaged consumer food products.

Perceived behavioral control refers to the perceived ease or difficulty (time, money and opportunity) of performing a behavior that reflects on experiences and anticipated impediments (Ajzen, 1991). This study places the perceived behavioral control (PBC) into two categories namely: external PBC and internal PBC, and examines its specific influences on green purchase intentions.

Internal PBC has been described as an individual's internal perception that she/he is in control over personal resources, such as skills, confidence, planning, and the ability to perform the specific behavior (Armitage, Conner, Loach, & Willetts, 1999). If a customer has higher internal PBC, this is expected to lead to stronger intention for purchasing eco-friendly packaged food products. A person has required skill and confidence act as a necessary trigger for their green purchase intention. Past studies show that internal PBC influences the intention to adopt a behavior (Baker et al., 2007; Kidwell & Jewell, 2003).

According to Armitage et al. (1999), external PBC can be described as a consumer's perception that she/he has control over external conditions such as time, money, and availability to perform a certain task. Jin and Kang (2011) believe that the external PBC is related to a consumer's perception of their control over external barriers. In previous research, the external PBC has been an important predictor of the intent to purchase eco-friendly products (Jin & Kang, 2011; Armitage et al., 1999).

H3: Internal PBC influences the green purchase intention of urban professional women toward eco-friendly packaged consumer food products.

H4: External PBC influences the green purchase intention of urban professional women toward eco-friendly packaged consumer food products.

The behavior of consumers who spend on green products has received considerable scholarly attention in recent years (Chen et al., 2017). Green purchasing behavior refers to spending on consumer products, perceived to be beneficial to the environment, recyclable, conservable, or responsive to ecological concerns (Kozar & Connell, 2013) such as eco-friendly food packaging. Yadav and Pathak (2017) in a study on Indian consumers a positive relationship between behavioral intentions and green buying behavior.

H5: Green purchase intention influences the green buying behavior of the urban professional women toward eco-friendly packaged consumer food products.

Hence, the conceptual model (Figure 3) in this study has integrated environmental attitudes, subjective norms, internal and external PBC, and green purchase intention as determinants of green buying behavior.

3 Methodology

3.1 Sampling Frame

The size of the female labor force in Bangladesh has increased more rapidly than that of men, from 2015-16 to 2016-17 (Dhaka Tribune, 2018). Understanding the pro-environmental attitudes of the educated younger generation, such as female employees in corporate Bangladesh (Table 3), is instructive. Given these working women represent the future consumers, and the future of the society, developing sustainable marketing strategies for this group is critical (Kanchanapibul, Lacka, Wang & Chan, 2014). Past research has recognized women, young people, and consumers with relatively high education and incomes are most likely to be attracted to consumption of green products.

Table 3: Education and female labor force participation

Level of Education	Female Labor Force Participation Rate	Female Rate of Paid Labor	Female Rate of Own-Account or Family Labor
None	21.1	3.9	13.8
Primary	52.4	9.7	39.4
Secondary	33.0	14.2	15.7
Higher Secondary	35.6	15.2	13.1
Tertiary	54.2	35.1	10.0

Source: Analysis of data from Bangladesh Bureau of Statistics. 2015. *Labour Force Survey 2013*. Dhaka.

3.2 Data Collection

The capital city of Bangladesh, Dhaka, is selected for data collection, as it is the most urbanized part of the country, with the highest composition of the MSW (BBS, 2010). A random sample of female corporate employees (professional women) in various banks and multinational companies across the city was the target group for this study. Khare (2015) hypothesizes that urban residents, especially women, are more likely to purchase green products. We can make a good case that professional women in Dhaka are comparatively more informed of the green concept, given their experience in buying packaged food from various supermarkets including, *PQS*, *Shopno* and *Agora*. Therefore, a study of this group's buying behavior toward packaged food may lead to important insights on the future trends in buying behavior for green products across Bangladesh.

The survey was conducted from December 2018 to January 2019 in various locations in Dhaka including, Banani, Gulshan, Bashundhara, Mirpur, Dhanmondi and Uttara. On weekdays, the women buyers were randomly approached during their visit to the various supermarkets for buying groceries. Given the absence of a list of a sampling frame, the author employed non-probability sampling. One hundred and fifty questionnaires were distributed. After dealing with the missing values, 100 returns were available further analysis (66.6% response rate). The sample size is considered reasonable. PLS-SEM was used to analyze the data, since this statistical package allows a high level of statistical power with a small sample size (Hair et al., 2017).

3.3 Development of Survey Instrument

The first part of the questionnaire focuses on demographic variables such as age, income, marital status, and education. The second part of the survey covers the constructs of the model such as environmental attitude, subjective norm, perceived behavioral control and green buying behavior. Table 4 below summarizes the items, which were adapted to measure various constructs in the model for this study.

Table 4: Summary of measurement items of the constructs

Variables	Construct	Items	Source
Independent variables	Environmental attitude	4	McCarty and Shrum (1994) and Tanner and Kast (2003)
	Subjective norm	3	Armitage et al. (1999)
	Internal perceived behavioral control	4	Armitage et al. (1999)
	External perceived behavioral control	4	Armitage et al. (1999)
	Green purchase intention	5	Paul et al. (2016)
Dependent variable	Green buying behavior	6	Ahn et al. (2012)

The questionnaire was pre-tested among three experts from the field of environmental science and two corporate women employees to check the content validity. Afterward, necessary adjustments were made to contextualize the measurement items used in the final questionnaire (Appendix 1). The survey was conducted in English. The Cronbach's alpha coefficient is 0.85 for environmental attitude, 0.80 for subjective norm, 0.84 for internal perceived behavioral control, 0.84 for external perceived behavioral control, 0.85 for green purchase intention, and 0.78 for green buying behavior, which indicates the scale's reliability. Participants used Likert Scale from "1" (completely disagrees) to "5" (completely agrees) to register their responses.

3.4 Statistical Technique

The data gathered from the survey was analyzed by using the Partial Least Squares (PLS) method, which is a variance-based technique for the analysis of Structural Equation Modelling (SEM). The SEM is most appropriate when the model has multiple constructs each represented by a number of variables, and allows the simultaneous estimation of relationship/equations (Hair et al. 2010, p. 641).

4 Analysis and Findings

Based on the survey, Table 5 presents the demographic profile of the female corporate employees in Bangladesh. The sample reveals that 26% have a minimum monthly income in the 20,000 - 40,000 taka range (US$ 237.65-USD $475.30), and 27% have a monthly maximum income of 50,000 taka (USD$ 594.12) or higher. Most women in the sample are at least 30 years old. We can conclude that most women corporate employees in Bangladesh prefer grocery shopping once a month. *Agora* is still on their priority list as a place to shop grocery.

4.1 The Model – An Assessment

Convergent validity refers to "the degree to which multiple items measuring the same concept are in agreement" (Hair et al., 2010). In this study, we used factor loadings, composite reliability and average variance extracted to assess convergence validity. The loadings for all items exceeded the recommended value of 0.5 as suggested by Hair et al. (2010). Composite reliability values that depict how much the construct indicators indicate the latent construct ranged from 0.87 to 0.90, exceeding the recommended value of 0.7 (Hair et al., 2010). The average variance which reflects the overall variance in the indicators represented by the latent construct was in the 0.578-0.718 range, exceeding the recommended value of 0.5.

4.2 Validity of Constructs

Discriminant validity is examined by comparing the squared correlations between constructs and the average variance extracted for a construct (Fornell & Larcker, 1981). The squared correlations for each construct in this study is less than the average variance as extracted by the indicators implying adequate discriminant validity.

4.3 Assessment of the Structural Model

The structural model is important for testing our hypotheses. As shown in Table 6, the empirical results support three out of five hypotheses. Environmental attitude ($\beta = .651$, $p < 0.01$) and External perceived behavioral control ($\beta = .233$, $p < 0.01$) are positively related to intention to purchase green packaged products. Green Purchase Intention ($\beta = .607$, $p < 0.01$) is positively related to Green Buying Behavior (GBB). Thus, H1, H4 and H5, all are supported by the data; H2 and H3 are not supported.

5 Discussion

This study hypothesized that attitudes toward the environment are positively related to the purchase behavior of food products with green packaging among working women (female corporate employees) in Bangladesh. Previous studies found support for this hypothesis (Diamantopoulos et al., 2003; Alwitt & Pitts, 1996). However, the relationship between the subjective norm and intention (H2 in this study) was not supported by the data. This finding contradicts the outcome of Verma and Chandra (2018). One explanation is that those participating in the survey are mature women (30 years or older), who already had decided on their preferred items to shop (Werner, 2004; Lascu & Zinkhan, 1999).

Similarly, H3, which captures the relationship between internal perceived behavioral control, and green purchase intention, is unsupported by the sample data. The results from the study by Panahi, Keivandarian, and Azizi (2014) reveals that the majority of Bangladeshis are unaware of green products. They may be lacking requisite skills, confidence, adequate planning to selectively shop products with green packaging. This leads to our recommendation for organizing marketing campaigns in different supermarkets to make the customers more familiar with green packaging of food products, which would enhance their green buying behavior.

We find that the External Perceived Behavioral Control (PBC) is positively related to the intent for green purchase (supports H4), which is in line with the findings of previous researchers (Armitage et al., 1999; Jin & Kang, 2011). By examining these aspects of the PBC model, the study validates the importance of women shoppers' decision-making power (external PBC) in the purchase of environmentally friendly products, given the rapid socioeconomic changes in Bangladesh. This approach advances previous studies that primarily viewed PBC as one dimension. Lastly, for H5, the data reveals a positive association between green purchase intention and green buying behavior among urban-based women consumers. This finding complements the findings of Yadav and Pathak (2017) which found a positive association between intentions and green buying behavior.

6 Recommendation and Implications

Given the growing emphasis on Sustainable Production and Consumption (SPC), and the commitment of the government of Bangladesh to United Nations Sustainable Development Goals (SDGs), the collection of data on 3R (Reduce, Reuse, Recycle) may become a routine part of the data collection by the BBS and other government agencies. This study recommends a three-pronged solution for achieving environmental sustainability through green consumer buying of food products: first, policy initiatives by the authorities: second, initiatives by the food product manufacturers, and third, initiatives by the ordinary citizens concerned about the nation's environment and welfare.

A story in *The New Nation* (2016) featured Kazi Sazedur Rahman of the KPC industry, who has contributed to the improved environment, by manufacturing alternative plastic products. The article highlighted high import duties (61 percent) on raw materials, which adds substantially to the cost of products, nearly doubling it. If the government lowers import duties on raw materials used to manufacture environmentally friendly products, his company will become more competitive with non-green food products packaging in the market.

To strengthen and sustain green buying behavior by urban customer groups in Bangladesh, the food manufacturing companies must change their practices:

- Inform the public of the positive impact of ecologically friendly packaging on the environment, through marketing campaigns (Grunert et al., 2014). This will encourage eco-friendly buying and consumption habits by increasing the visibility of these products in the marketplace. Companies, which produce and use green packaging, can work with banks and other businesses, including multinational companies to organize seminars and marketing

campaigns to sway the shopper's opinion (Jahanshahi & Jia, 2018) among their staff. This would increase their confidence in green buying behavior especially for products with eco-friendly packaging.

- Encourage the implementation of "eco-labelling" to influence consumer purchasing habits. This will lead to greater sales of products with environment-friendly packaging over others (Delafrooz, Taleghani, & Nouri, 2014).

According to Sharma (2011), companies should organize campaigns to encourage green shopping behavior through educational communication. The focus should be on environmental concerns. Finally, companies must promote an environmentally friendly lifestyle by moving to sustainable production processes. This study recommends increased use of durable packaging, which can improve the product and change consumer attitudes toward sustainability and influence their green purchasing decisions (Orzan et al, 2018).

This study, with a focus on educated women employees as customers, reveals that their (green purchase) intentions are not because of the significant others, rather it is influenced by factors related to external perceived behavioral control. These include their control over time, money and availability of food products in eco-friendly packaging in the market. Past research by Jahanshahi and Jia (2018) with Bangladeshi data shows that green purchasing behavior is more common among customers (e.g. women corporate employees) who can challenge prevalent opinions in the society, and purchase products or brands because of their intention to help the environment. Therefore, a major implication of this study is the importance of increasing the awareness of the consumer on the availability of eco-friendly food products in the market, and the long-term benefits of eco-friendly packaging.

These initiatives gradually implemented are expected to help Bangladesh in strengthening the green buying behavior among different segments of the population. Jahanshahi and Jia (2018) in their research show customers can act as drivers of the green movement in Bangladeshi through a greater willingness to buy products with green packaging. As consumers increase their spending on environmentally friendly products, these trends are expected to motivate manufacturing companies to increase their investments in green marketing strategies and use more environmentally friendly packaging. The analysis of data on the buying behavior of women employed in corporate Bangladesh adds a fresh perspective on how to attain the long-term environmental goals for the country.

7 Conclusions

Green consumption of food items is fast emerging as a golden opportunity for food manufacturers and marketers interested in green/sustainable marketing and production to meet the changing preferences and attitudes of consumers (Chaudhary, 2018). However, the level of awareness regarding the environmental preservation is still rudimentary for most shoppers in Bangladesh. This can change if policymakers and businesses align themselves to the movement to protect the environment. The National Environmental Policy with Acts and Rules designed to protect the environment by reducing waste, will help modify the buying behavior of Bangladeshi consumers, both men and women, toward products, which are eco-friendly with appropriate packaging.

The findings of this study on the buying behavior of working women serve as a benchmark for manufacturers and marketers of food products. These findings may also guide businesses to comply with their own good practices and 3R policies, to align their production and packaging practices with the UNDP's Sustainable Development Goals by 2030. As with any study, there are limitations on these results. First, the data collected was within a defined period (cross-sectional data). Future studies may want to use longitudinal data to provide a deeper understanding of the customer behavior. Second, the focus of this study is a particular class of customers – urban women corporate employees. Using a larger sample size with a varied group of respondents such as Generation X, Generation Z, and male population will produce results which are more robust.

A change in consumer behavior for the environment is a prerequisite for strengthening the green revolution in developing countries like Bangladesh (Lee & Jeong, 2011). We hope that other researchers would build on the findings of this study to lay the foundation of more in-depth research to explore consumer behavior regarding eco-friendly food packaging.

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Appendix

Table 1: Waste generation in urban centers of Bangladesh

Year	Urban population (million)	Waste generation (ton/day)	Waste generation (kg/per capita/day)	GDP per capita
1991	20.8	6493	0.31	US $ 220
2005	32.76	13330	0.41	US $ 482
2013	40.00	20000	0.50	US $ 1190
2025	78.44	47000	0.60	----

Source: Practical Action (2016), based on BBS and World Bank data.

Table 2: Distribution of total MSW in Bangladesh

MSW Generation Source	% distribution of total MSW generated daily of major cities by waste generation sources					
	Dhaka	Chittagong	Khulna	Rajshahi	Barisal	Sylhet
Residential	75.86	83.83	85.87	77.18	79.55	78.04
Commercial	22.07	13.92	11.60	18.59	15.52	18.48
Institutional	1.17	1.14	1.02	1.22	1.46	1.29
Municipal services	0.53	0.51	0.55	1.24	1.15	0.80
Others	0.37	0.60	0.96	1.77	2.32	1.39
Total	100	100	100	100	100	100

Source: Bangladesh Compendium of Environmental Statistics, 2009 (BBS, 2010, p 323).

Table 5: Sample Characteristics

Variables	**Category**	**Frequency**	**%**
Age	16-20 years	1	1.0
	20-25 years	25	25.0
	25-30 years	21	21.0
	Above 30 years	53	53.0
Marital Status	Married	52	52.0
	Single	48	48.0
Income (Monthly)	<20,000 Tk.	27	27.0
	20,000-40,000 Tk.	26	26.0
	40,000-50,000 Tk.	20	20.0
	>50,000 Tk.	27	27.0
Types of Company	Bank	57	57.0
	FMCG (Fast Moving Consumer Goods)	18	18.0
	Readymade Garments	1	1.0
	Telecommunications	21	21.0
	Pharmaceutical and Health care	3	3.0
Preferred Super Shops in Bangladesh	Swapno	25	25.0
	Agora	35	35.0
	Meena Bazar	15	15.0
	Mostafa Mart	5	5.0
	UniMart	6	6.0
	Others	14	14.0
Shopping Frequency	Once in a month	35	35.0
	Twice in a month	35	35.0
	Thrice in a month	12	12.0
	More than that	18	18.0

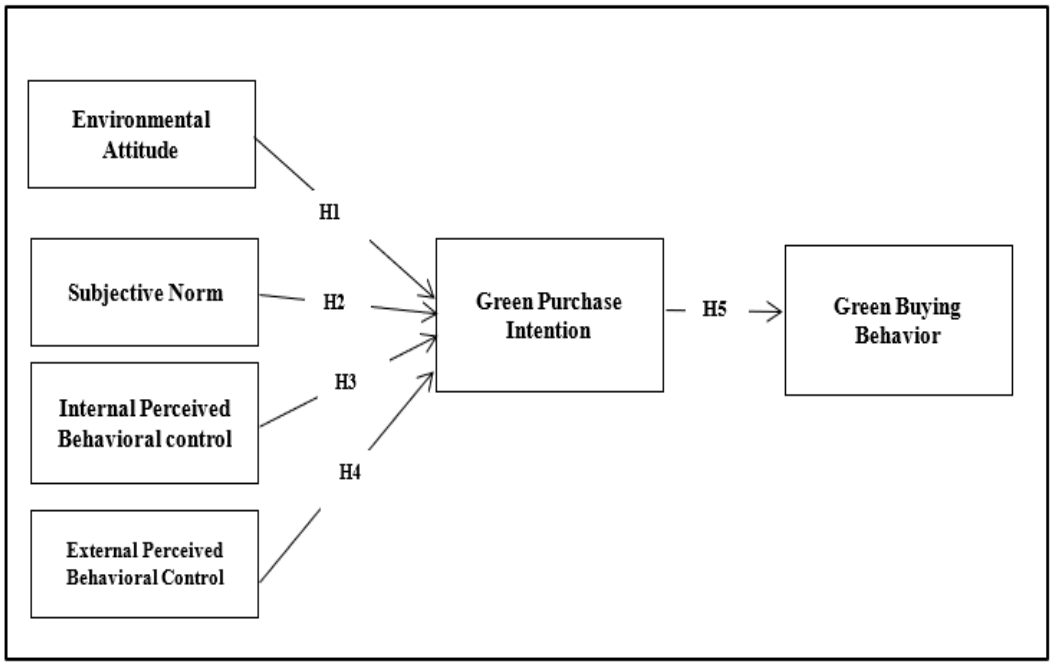
Source: *SPSS output*

Table 6: Path coefficients and hypothesis testing

Hypotheses	Path	Coefficient	t-Statistics	P-Value	Decision
H1	Environmental Attitude → Green Purchase Intention	0.65	7.76	0.00	Supported
H2	Subjective Norm → Green Purchase Intention	-0.003	0.05	0.48	Not Supported
H3	Internal Perceived Behavioral Control → Green Purchase Intention	0.08	1.20	0.12	Not Supported
H4	External Perceived Behavioral Control → Green Purchase Intention	0.23	3.55	0.00	Supported
H5	Green Purchase Intention → Green Buying Behavior	0.61	6.50	0.00	Supported

Source: PLS-SEM output

Figure 3. Conceptual Model



Environmental attitude		
1	Environmental protection is important when making purchase packaged food products.	McCarty and Shrum (1994) and Tanner and Kast (2003)
2	Green (eco-friendly) packaging of food is important to reduce environmental damage.	
3	Green (eco-friendly) packaging of food is important to save the environment.	
4	If I can choose between green (eco-friendly) packaged food and normal food packaging, I prefer green packaged food.	
Subjective Norms		
1	People important to me think I should purchase green (eco-friendly) packaged food products.	Armitage et al. (1999)
2	People important to me would approve of my purchasing green (eco-friendly) packaged food products.	
3	People important to me want me to purchase green (eco-friendly) packaged food products.	
Internal Perceived Behavioral Control		
1	I believe I can purchase green (eco-friendly) packaged food products.	Armitage et al. (1999)
2	If it were entirely up to me, I am confident that I could purchase green (eco-friendly) packaged food products.	
3	How confident are you that you can purchase green (eco-friendly) packaged food products?	
4	To what extent do you see yourself as capable of purchasing green (eco-friendly) packaged food products?	
External Perceived Behavioral Control		
1	Whether or not I purchase green (eco-friendly) packaged food products is entirely up to me.	Armitage et al. (1999)
2	There are likely to be plenty of opportunities for me to purchase green (eco-friendly) packaged food products	
3	How much personal control do you feel you have over purchasing green (eco-friendly) packaged food products?	
4	How much do you feel that purchasing green (eco-friendly) packaged food products is within your control?	
Green Purchase Intention		
1	I will consider buying green (eco-friendly) packaged food products because they are less polluting in coming times.	Paul et al. (2016)
2	I will consider switching to environmentally friendly packaged food brands for ecological reasons.	
3	I plan to spend more on environment-friendly packaged food products rather than conventional products.	
4	I expect to purchase green (eco-friendly) packaged food product in the future because of its positive environmental contribution	
5	I definitely want to purchase green (eco-friendly) packaged food products in near future.	
Green Buying Behavior		
1	I do not use plastic/polystyrene food packaging in all possible ways.	Ahn et al. (2012)
2	I usually prefer to purchase green (eco-friendly) packaged food.	
3	If I have to buy food, I always purchase food sold in biodegradable packaging.	
4	I try to purchase green packaged food products with little and/or no environmental harm, even though they are more expensive.	
5	I always purchase biodegradable packaged food products.	
6	I always refrain from purchasing disposable packaged food products.	