YOUNG CONSUMERS' ECO-FRIENDLY FOOD PURCHASING CONSCIOUSNESS-BEHAVIOR GAP IN BANGLADESH

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ABSTRACT

The demand for eco-friendly food is increasing globally, including Bangladesh. This study aimed to examine the environmental consciousness and knowledge-behavior gap of young consumers regarding eco-friendly food purchasing intentions in Bangladesh. Survey data were collected from 200 young university students employing purposive random sampling methods in 2019. The results reveal that most young consumers have strong environmental consciousness and intention to purchase green products. While purchasing, they usually prefer eco-labeled and environment-friendly products. The factors fueling the respondents' environment consciousness-behavior gap include unavailability of eco-friendly products, the high price of available eco-friendly products, and minimum eco-friendly product alternatives to conventional products. Making eco-friendly products available for all and alternatives to regular food commodities will favorably foster the purchasing intention of eco-friendly food in Bangladesh.

Keywords: Consciousness-Behavior Gap, Environmental consciousness, Purchase intention, Eco-friendly, Young consumer.

I. INTRODUCTION

The world population is projected to reach 9 billion by 2050, primarily driven by growth in developing countries and countries with lower per-capita incomes (UNDP, 2008). With this increasing population, the consumption of food is also in upward trends. The occurrence of global warming and the continuous rise of this issue makes people more careful to use various products that are feared to increase the level of global warming at levels that endanger humanity (Situmorang, 2011; Roesman, 2017). In terms of consumption, the three most considered factors are food safety, environment protection, and animal welfare (Fraser, 2001; Rezai *et al.,* 2012). Green purchasing behavior or the purchase of environmentally friendly products is a pro-environment behavior (Kim and Choi, 2005; Roesman, 2017). Green purchase

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intention or eco-friendly purchase intention is conceptualized as the probability and willingness of a person to prefer products with eco-friendly features over other traditional products in their purchase considerations (Rashid, 2009). Consumers now have more substantial purchasing power and more choice when purchasing and consuming food. Therefore, more people demand healthier, safer, hygienic, environmentally friendly, and higher-quality foods (Abdul, 2009; Rezai *et al.,* 2012). Research in the last decade (D'Souza, 2004; Lee, 2009; Rahbar and Wahid, 2011) has indicated that consumer was aware and willing to pay more to 'go green' (Adrita, 2020).

Ethical consumers have emerged, and their main concerns are buying products, which are not harmful to the environment and society, and come with higher nutritional value, health, and quality of food (Wier and Calverley, 2002; Song *et al.,* 2016). Environmental consciousness is mandatory for every act of every person. Young consumers are generally very much interested in consuming pro-environmental products. Also, green products' demand is growing at a significant rate (Vitale and Giffi, 2014; Roesman, 2017). Young consumers are a significant part of the total population of Bangladesh. Statistics show around 67.61 percent of the total population lies within the age of 15-64 years (Statistia, 2020). This group of people is considered as young from some research perspective (Statistia, 2020). However, in this study, people with an age range of 21-45 years are taken as the young generation. Young generations are supposed to exhibit a positive attitude toward green purchasing as they possess pro-environmental activity and have greater access to new information, social media, markets, and inventions (Nguyen et al., 2018). Everyday consumption behavior can be a good starting point if young-generation buyers are motivated to contribute to the sustainable enhancement and green buying (Lai and Cheng, 2016; Uddin and Khan, 2018). Most of the studies regarding environmental consciousness and eco-friendly food consumerism have been conducted in developed countries.

In contrast, in developing countries, the number is significantly low, and it is quite clear that there is an extensive research gap in recognizing those areas of consumers' environmental consciousness impacting the day-to-day consumption of eco-friendly food products. Therefore, this study intends to fill the research gap by investigating (i) young consumers' environmental consciousness and (ii) the reasons influencing young consumers purchasing intention of eco-friendly food items.

II. MATERIALS AND METHODS

Data and collection procedure

Involving young working people is difficult due to time constraints, but university students represent the young consumer because of their age. They are well educated, have a good understanding of the green movement, and highly cooperative. Students

from undergraduate and graduate levels were considered as a sample of the total young population.

A total of 200 students from three different fully residential universities (i.e., Bangladesh Agricultural University (BAU), Bangabandhu Sheikh Mujibur Rahman Agricultural University (BSMRAU), Sher-e-Bangla Agricultural University (SAU)) were sampled by the authors between August 10 to September 20 of 2019, maintaining a ratio of the number of total students of these universities. The male to female ratio was 1:1 to obtain the correct scenario from the consumers. Bangladesh Agriculture University (BAU), Mymensingh with a population of 6075 students, 2500 at Sher-e-Bangla Agricultural University (SAU), Dhaka, and 2000 at Bangabandhu Sheikh Mujibur Rahman Agricultural University (BSMRAU), Gazipur. From the total 10575 respondents, considering a margin of 7% by employing statistical formula (Guo *et al.,* 2014; Dogan and Muhammad, 2019), 200 samples (n) were taken, and this sample size is mentioned as reasonable (Roscoe, 1975).

$$n = \frac{N}{(1 + Ne^2)}$$

Of the 200 respondents, 100 from BAU, 50 from SAU, and 50 from BSMRAU were included. A structured interview schedule was preferred as a survey instrument to collect the required information to address the overall research questions and hypotheses.

The homogenous sampling method under a purposive sampling technique was used because of time and cost constraints (Etikan *et al.,* 2016; Black, 2010). The study was based on primary data, both qualitative and quantitative, in type. Data cleansing and the initial test of collinearity (<0.01) were done to eliminate misdirected results.

Data Analysis

Item analysis based on Likert scale (five-point) items were used for easier but discrete respondents' expression regarding their environmental consciousness level. The general assumption of using the Likert scale is based on the concept that an attitude's strength or intensity is linear in nature. This means that the range is in between strongly agree to strongly disagree (McLeod, 2019; Jamieson, 2004; Likert, 1932).

On a 5-point Likert scale, each item calls for checking one of five fixed alternative expressions where weights of 5, 4, 3, 2, 1 were assigned for favorableness of the items and 1, 2, 3, 4, 5 were assigned for un-favorableness of the items. The statements used in the Likert scale analysis are presented in Table 1.

With these statements, this would be possible to conclude whether young consumers have any duality nature of consumption and perception about environmental concerns. Besides, it would be possible to identify whether they have enough

understanding of the environment or not, using that knowledge while purchasing or not, and finally remarking the entire situation based on the findings.

The internal consistency of the statements was tested using Cronbach's alpha test (Cronbach, 1951). This index of reliability is associated with the variation accounted for by the actual score of the "underlying construct." Construct is the hypothetical variable that is being measured (Hatcher, 1994). It determines the internal consistency or average correlation of items in a survey instrument to gauge its reliability (Santos, 1999). Cronbach's alpha reliability coefficient ranges typically between 0 and 1. However, there is no lower limit to the coefficient. The closer Cronbach's alpha coefficient is to 1.0, the greater the internal consistency of the items in the scale.

$$Cronbach's\ Alpha, \alpha = \frac{rk}{[1 + (k - 1)r]}$$

Table 1: Sixteen statements of Likert scale for item analysis

SN	Statements
1	Humans need to adapt to the natural environment now. Otherwise, there should be devastating consequences
2	For environmental sustainability, household waste recycling is a must
3	It is essential to promote green living in Bangladesh
4	Environmental protection issues are none of my business
5	I think environmental protection is meaningless
6	I buy green products after watching my friends
7	I have attended different workshops/ seminars and from there I am influenced to purchase green products
8	When I have a choice between two equal products, I purchase that product which has a less harmful effect on other people and the environment
9	I always try my best to buy products that are eco-friendly
10	When shopping, I deliberately choose products with environmentally friendly packaging
11	When I consider buying a product, at first, I look for an eco-friendly product
12	I am familiar with an eco-friendly product
13	Jute bag/ paper bag packaging is better than polythene/net bag
14	I try to buy things that come in reusable containers
15	If we stop buying products that are a threat to the environment, companies will be forced to produce an eco-friendly product
16	Changing purchasing behavior can help in protecting the environment.

Where k is the number of items considered, and r is the mean of the inter-item correlations. The size of alpha is determined by both the number of items in the scale and the mean inter-item correlations.

After the reliability test, the respondents were ranked according to their mean value obtained from responses to the statements and grouped into the lowest mean and the highest mean groups. The highest groups included the top 25 percent and vice versa.

The weighted total and weighted mean of each statement of the highest and lowest group were calculated.

$$\text{Weighted total} = \text{Score} * \text{Number who checked the score,}$$

And, **Weighted mean** $= \dfrac{\text{Weighted Total}}{\text{Total Number in Group}}$

With item analysis, each item's ability to separate the highest from the lowest is measured. This is called discriminative power (DP). The DP value was calculated for each item by subtracting the lowest weighted mean value from the highest.

Statements were arranged based on the DP value in descending order. A higher DP value indicates more 'strongly agree' response weights in the highest 25 percent than the lowest 25 percent summated scores of consumers' responses and vice versa. Based on individuals' total score value, favorableness and un-favorableness of eco-friendly food purchasing behavior were presented. As the study used a five-point Likert scale with 16 statements, respondents were grouped into two categories- non-favorable (16-48) and favorable (49-80).

III. RESULTS AND DISCUSSION

Consumers' environmental consciousness level toward food purchasing

The mean score and standard deviation of each statement was represented in Table 2. The statements were ranked according to their mean value. The highest mean score was attained by negative statement 5, which is "I think environmental protection is meaningless." That means consumers' perceptions towards this statement were the most influential than the other. The second highest mean score was gained by the positive statement, "Jute bag/ paper bag packaging is better than polythene/net bag." The third statement, "It is essential to promote eco-friendly living in Bangladesh" gained the third highest mean score, which was also a positive statement. On the other hand, the lowest mean score was gained by the positive statement 7, "I have attended different workshops/seminars, and from there I am influenced to purchase eco-friendly products." That means this statement had less influence than the other ones.

A comparative percentile value against each statement was graphically presented in Figure 1. This figure shows that the 5th statement gained the highest "strongly disagree" response that is 77.5 percent, and the lowest level of "strongly agree" response is 0 percent, which shows the bipolar nature of the Likert type scale. That means maximum consumers disagreed with the statement of "I think environmental protection is meaningless." This proved that the respondents have concerns over the environment. On the other hand, the 15th statement showed the highest "strongly agree" response that is 68.5 percent and 1 percent of "strongly disagree" response. That means maximum consumers were agreed with the statement that "If we stop buying products that are a threat to the environment, companies will be forced to produce eco-friendly products." This also indicates the young consumers' positive consciousness level.

Table 2: Mean score of consumers environmental consciousness level

Statement No.	Mean	Standard Deviation	Rank by Mean
5	4.75	0.51	1
13	4.64	0.62	2
3	4.56	0.59	3
4	4.44	0.66	4
2	4.40	0.79	5
8	4.39	0.67	6
16	4.39	0.73	7
15	4.28	0.79	8
9	4.15	0.82	9
1	3.81	0.30	10
14	3.81	0.86	11
12	3.73	0.97	12
10	3.66	0.91	13
11	3.50	0.99	14
6	2.73	0.85	15
7	2.65	0.96	16
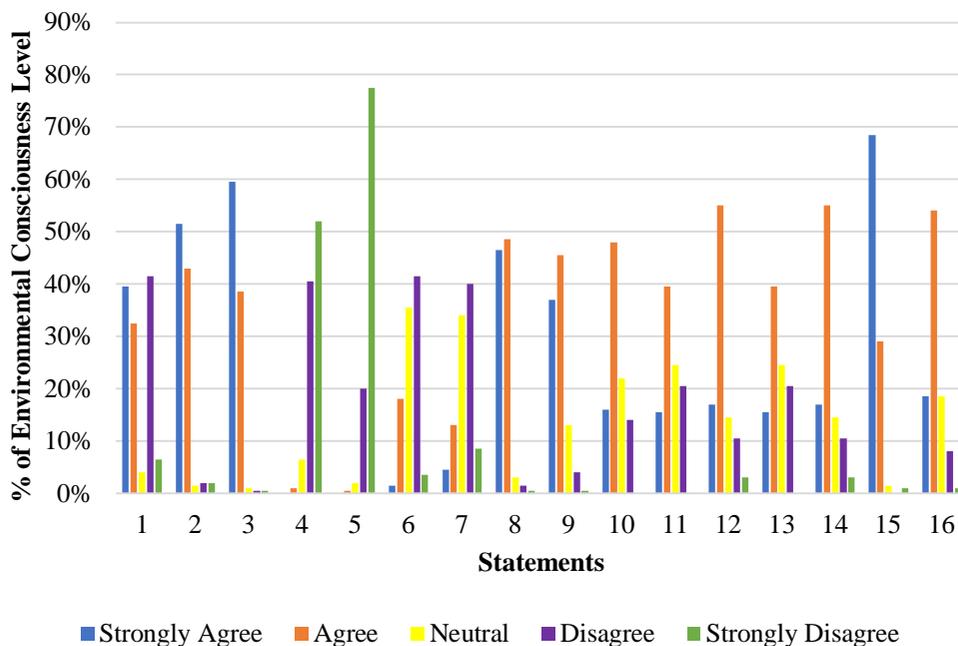
Figure 1: Percentage of young consumers' environmental consciousness level

Reliability test statistics of selected statements

Item Analysis (IA) helps to evaluate the correlation of related survey items with only a few statistics. Values above 0.7 are often considered to be acceptable. It determines how removing any one item from the analysis improves or worsens Cronbach's alpha. This information allows for fine-tuning of the survey, keeping the good questions while replacing the bad. The reliability test was measured with Cronbach's alpha (Griffith, 2015).

Table 3: Item-total and reliability statistics

Item-Total Statistics				
Statement No.	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
S1	59.80	45.582	0.202	0.195	0.828
S2	59.22	44.749	0.482	0.429	0.799
S3	59.06	45.281	0.571	0.547	0.796
S4	59.18	45.704	0.477	0.387	0.800
S5	58.88	46.767	0.453	0.439	0.803
S6	60.88	47.972	0.179	0.119	0.818
S7	60.96	47.914	0.148	0.157	0.822
S8	59.23	45.756	0.466	0.379	0.801
S9	59.47	44.905	0.450	0.396	0.801
S10	59.95	44.470	0.445	0.444	0.801
S11	60.11	44.333	0.414	0.408	0.804
S12	59.89	43.637	0.480	0.310	0.799
S13	58.98	44.845	0.602	0.584	0.794
S14	59.80	44.403	0.477	0.321	0.799
S15	59.34	43.754	0.579	0.506	0.793
S16	59.23	43.872	0.615	0.598	0.791
Reliability statistics				
Cronbach's alpha	Cronbach's alpha based on standardized items			N of items
0.745	0.771			16

The value obtained in Table 3 indicates each statement had almost equal consistency, and even after adding or deleting an item, the reliability value ranged from 0.791~0.828, which was acceptable. There is no internal consistency among the sixteen statements, indicated by the acceptable Cronbach's alpha value (0.745)

means, all the included statements were independently reflecting consumers responses and reliable enough to estimate the actual situation.

Discriminative power (DP) value

Item analysis acts as a basis for determining items includable to final scale. It also defined the index of indiscrimination as the ability of an item based on which the discrimination is made between superiors and inferiors (Blood and Budd, 1972; Suruchi and Rana, 2014).

Table 4: Best selected statements

SN	Statement	DP Value	Ranked by DP Value
11	When I consider buying a product, at first, I look for an eco-friendly product.	1.32	1
1	Humans need to adapt to the natural environment now. Otherwise, there should be devastating consequences.	1.20	2
10	When shopping, I deliberately choose products with environmentally friendly packaging.	1.2	3
12	I am familiar with eco-friendly products.	1.18	4
9	I always try my best to buy products that are eco-friendly.	1.12	5
14	I try to buy things that come in reusable containers.	1.12	6
15	If we stop buying products that are threats to the environment, companies will be forced to produce eco-friendly products.	1.04	7
16	Changing purchasing behavior can help in protecting the environment.	1.02	8
2	For environment sustainability, household waste recycling is must	0.90	9
4	Environmental protection issues are none of my business.	0.82	10
8	When I have a choice between two equal products, I purchase that product which has less harmful effects on other people and the environment.	0.82	11
3	It is essential to promote eco-friendly living in Bangladesh.	0.80	12
13	Jute bag/ paper bag packaging is better than polythene/net bag.	0.74	13
5	I think environmental protection is meaningless.	0.56	14
6	I buy eco-friendly products by watching my friends.	0.52	15
7	I have attended different workshops/seminars and from there I am influenced to purchase eco-friendly products.	0.48	16

Descending order arrangement of test scores of Likert items, top 25 percent and bottom 25 percent scorers, of the total respondents were included for item analysis. Like previous studies (Wiersma and Jurs, 1990; Suruchi and Rana, 2014), the upper and lower scorers were added as they maximize the differences in the normal

distributions while the middle 50 percent of the test scores were excluded as they behave in a similar pattern contributing insignificantly to discriminate the performance by respondents. Statements were arranged according to DP values (Table 4). These were the items that had a greater ability to separate from the highest 25 percent to lowest 25 percent. The highest DP value showed the larger bipolar result with strongly agree and strongly disagree endpoints.

"Changing purchasing behavior can help in protecting the environment" came up with highest discriminative power, meaning, response to this statement had a greater difference between two endpoints strongly agree to strongly disagree. On the other hand, the lowest differential statement to the consumers was, "If we stop buying products that are threats to the environment, companies will be forced to produce eco-friendly products", which represents consumers do not believe or find reality through this statement.

If the influence on consumers' purchasing intention was explained by means of stated statements, it appeared that the mean value and DP value calculated for each statement represented a similar indication. The best statement to express the intention based on mean value 'I think environmental protection is meaningless' was a negative statement, and DP value of 'Changing purchasing behavior can help in protecting the environment' was a positive statement and in both statements, the disagree and agree responses were maximum. The disagree responses to the negative statement illustrate that consumers were thinking regarding environmental protection. They considered it crucial for a better life. On the other hand, the positive statement indicates that changing purchasing patterns will help the environment in the long run. The rest of the ranked statements ranked either based on the mean value or DP value indicated the same intention of consumers.

Favorableness and non-favorableness of responses

For the total 16 statements of a five-point Likert scale in this study, the ranges of consumer's responses were (16-80). That means the lower responses were 16*1=16 and higher responses were 16*5=80. The total respondents could be grouped into two categories that were non-favored (16-48) and favored (49-80). A clear conclusion can be drawn that 98 percent of respondents showed favorable intention toward eco-friendly product purchasing while only a very few were not in in favor (Table 5).

Table 5: Favorableness and non-favorableness of responses

Categories	No. of Responses	Percentage
Non-favored (16-48)	4	2
Favored (49-80)	196	98

Understanding consumer consciousness for anything with some statement is difficult, but with appropriate factors, including statements is useful for understanding and analyzing. The overall result illustrates that all the statements were consistent enough

and essential for analyzing the young consumers' environmental consciousness level. Some statements had more influence, and some had less. The included five-point Likert scale statements found that young consumers had greater concern over the environment. Most of the respondents reacted positively with the positive statements and negatively with negative statements, and all the results were relevant.

Barriers of purchasing eco-friendly food items by young consumers

Consumers' eco-friendly buying rate represented by frequency of market visit, purchased food types and their amount, money spent on buying them, types of bag used while carrying their food products and knowledge about eco-friendly products illustrates whether the respondent has eco-friendly purchasing behavior or not. However, the barriers preventing consumers from purchasing or expressing purchasing intention are not limited to followings and include many psychological factors (i.e., consumer preferences and personal choices).

Result showed that maximum respondent's (78.53 percent) purchased food items were packaged with polythene, followed by plastics (43.81 percent) (Figure 2). Both of these packaging types severely harm our environment. So, consumers' actual purchasing behavior does not reflect their eco-friendly purchasing behavior.
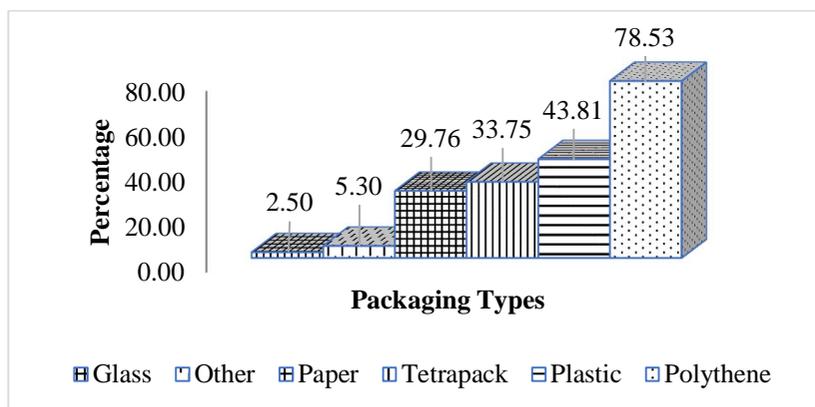

Figure 2: Respondent's purchased food products packaging types

Under the current study, the respondents were educated enough and know that polythene and plastic are very harmful to the natural environment. Most of them said that they know their purchasing behavior is negatively affecting nature, but they do not have any alternative option for purchasing eco-friendly packaged products. They blamed the marketing body who are supplying products with these types of harmful packaging. Figure 3 indicates the highest portion of purchased product packaging was either by polythene or plastics. In contrast, paper, an easy degradable packaging, contains the third-highest percentile value.
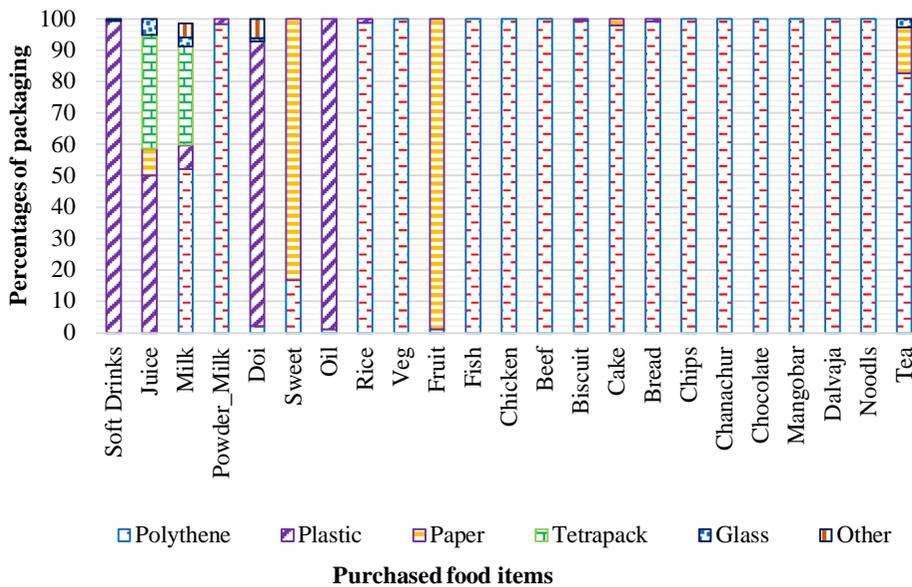
Figure 3: Packaging elements of purchased food items

Along with the packaging of products, some oyher crucial reasons behind people not buying eco-friendly food products exist. Figure 4 shows that 66.87 percent of the total respondents do not buy eco-friendly because they do not have any alternative eco-friendly product to the conventional. About 39.26 percent of the total respondents mentioned that eco-friendly products price is too high to afford. 17.18 percent voted on the statements that, "Producers only claim, actually it is not Eco-friendly." A few but considerable percentage (11.04) of young consumers thought environmental issues are a trick of companies to get attention to selling more. Unwillingness to pay a high price for an eco-friendly product is also an issue for 6.75 percent of respondents. They were not ready to pay extra money for eco-friendly products yet. Not necessarily everyone with formal education will be favorable toward eco-friendly purchases. It appeared, 4.91 percent of respondents failed to see the benefits of exclusive features come up with eco-friendly products.

In Bangladesh, consumer purchasing intention and decision gap were studied to a lower extent, but in abroad, from many previous studies, there is an indication that consumers generally do not like to spend much time searching for eco-friendly products; they preferred products that are easily accessible (Tanner and Kast, 2003; Young *et al.,* 2009). Further, consumers generally look for convenience in purchasing (Fotopoulus and Krystallis, 2002; Padel and Foster, 2005) and avoid behaviors that require higher perceived efforts (Gossling *et al.,* 2005). Another research finding indicated that limited availability and inconvenience in procuring products might act as barriers and influence the actual behavior towards purchasing eco-friendly

products negatively (Chen and Chai, 2010). Lack of availability, higher perceived prices, and improper communication about eco-friendly products are recognized as the main barriers responsible for environmentally conscious consumers' eco-friendly purchasing gap. Concerning the price, environmentally conscious consumers perceive eco-friendly products as more expensive than conventional products, which prevents these consumers from purchasing eco-friendly alternatives (Barbarossa and Pastore, 2015).
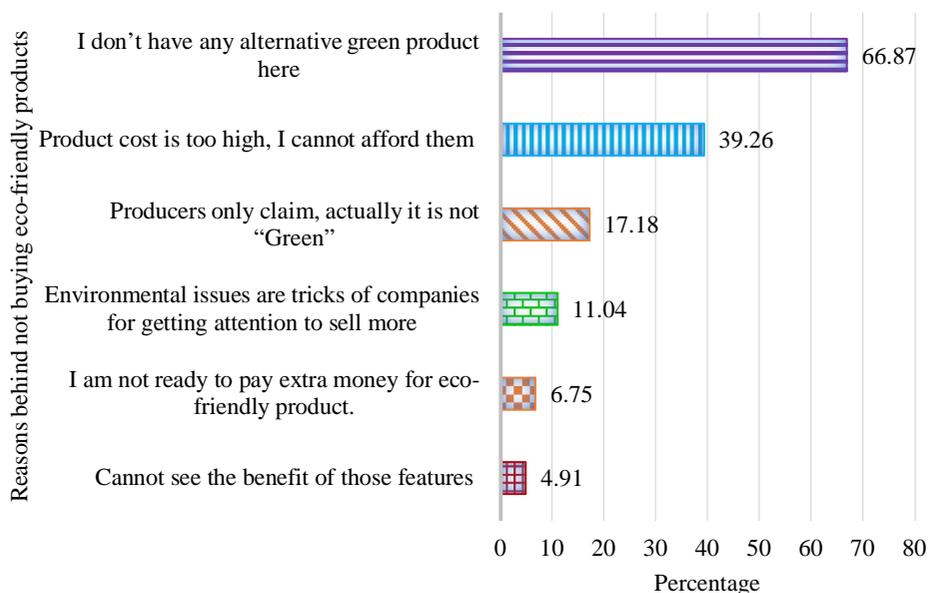

Figure 4: Respondent's reason behind not buying eco-friendly food products

The second most responded reason is the high price of eco-friendly products. Many studies indicated that one major factor that is considered the barrier to organic food consumption is its price (Ahmad and Juhdi, 2010; Fotopoulus and Krystallis, 2002; McEachern and McClean, 2002). In another study, researchers also found that "higher price" is the most frequently cited deterrent factor, particularly when consumers consider frequently purchased items (Gleim *et al.,* 2013). Higher prices were reported as a significant barrier to purchase environmentally sustainable products (Vermeir and Verbeke, 2008; Young *et al.*, 2009; Adrita, 2020). Consumers generally prefer low priced eco-friendly products and attach more importance to price than eco-friendly claims (Cranfield and Magnusson, 2003; Eze and Ndubisi, 2013; Adrita, 2020). In Bangladesh, environmental knowledge, environmental concern, and subjective norm do not directly affect in creating the intention of purchasing green products (Zahan *et al.,*2020). Consumers' green product awareness is often a significant indicator of green buying decisions (Siddique and Hossain, 2018).

IV. CONCLUSIONS

Environmental consciousness and knowledge do exist within this pro-active group of people. However, the practicing behavior or application of obtained knowledge does not exhibit the same as they know. There is a gap between the actual purchasing behavior and knowledge regarding eco-friendly products and environmental consciousness. Instead of having the proper knowledge to act for protecting the environment, consumers are still lagging.

Young consumers in the study area are more familiar with eco-friendly products available in the market, and they have a concern about the environment. Youngs believes consumers' active participation in protecting the environment by reducing the purchase of harmful products to the environment is a must. Manufacturers are bound to manufacture products in an eco-friendly manner if consumers demand it. Young consumers have strong environmental consciousness and intention to purchase green products. While purchasing, they usually prefer eco-labeled and environment-friendly products. However, the intention or consciousness-behavior gap is prominent. Most of the regular products, especially the food items, are packaged or provided with a non-eco-friendly packaging (i.e., polythene, tetra pack, plastic materials). For some products, degradable paper packaging was found to a lower extent. Product packaging is not the only reason behind the gap between intention and action. Unavailability of eco-friendly alternatives to conventional products, the price of available eco-friendly products being too high, is crucially an obstacle for young consumers.

Making eco-friendly products available for all and alternatives to regular food commodities will create a green market scope. Besides, reasonable price setting, lucrative and informative packaging, eco-labeling, and green marketing will attract all consumers, making the environment green by involving consumers.

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