



Hungarian University of Agriculture and Life Sciences

**"Consumers' Pro-environmental and Sustainable Consumption Behavior in
Climate Change Mitigation"**

Doctoral (Ph.D.) Thesis

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I. INTRODUCTION

1.1 Research Background

In the twenty-first century, several environmental challenges, such as global warming, adverse effects of greenhouse gas emissions, water, and air pollution, and the overarching problem of worldwide climate change, are the major global issues. Climate change has emerged as one of the most severe global threats in recent decades, impacting both human societies and environment in numerous detrimental ways (IPCC, 2021). Most scientists and researchers believe that limiting climate change is essential to maintaining the standard of living on Earth (RIPPLE ET AL., 2017). According to IPCC scientists, human-caused climate change has contributed to a wide range of meteorological and climatic extremes in different parts of the world, requiring immediate action. "Strong, rapid, and persistent reductions in greenhouse gas emissions, as well as reaching net-zero carbon dioxide (CO₂) emissions, have the potential to keep climate stability, improved air quality, and health benefits in a short period" (IPCC, expert PANMAO ZHAI, 2021, p. 3). The United Nations Climate Change Conference (COP26) recently raised some environmental issues to combat climate change. Human beings are getting dangerously close to points where health, safety, ecosystems, property, and infrastructure are at risk. The agenda of COP26 set a goal of achieving global net-zero emissions by 2050 and limiting global warming to 1.5 degrees Celsius. It motivates countries to finance clean, renewable energy sources and shift toward sustainable consumption habits (COP26, 2021).

On the other hand, it is widely known that businesses globally are polluting the environment by generating waste and CO₂. In the world where people's needs are endless, but resources are not. Thus, marketers must utilize resources properly. Previous studies explain that marketers can meet their goals without wasting valuable resources (DANGELICO & VOCALELLI, 2017; NEKMAHMUD & FEKETE-FARKAS, 2020). Therefore, many companies are starting to apply environmental marketing strategies to make their products environmentally friendly and promote those products to make consumers happy and earn profit in the long run and ensure a better quality of life (QoL) and society (MARTÍNEZ-ESPIÑEIRA ET AL., 2014). Environmental marketing or green marketing has become an essential trend in modern business, which is more applied in developed countries than lower and middle-income countries. Environmental marketing is getting more popular because people are paying more attention to environmental sustainability (DANGELICO & VOCALELLI, 2017). Environmental marketing encourages using eco-friendly products like refillable, ozone-friendly, healthy food, phosphate-free goods, and recyclable products. It also involves using environmentally friendly methods to meet consumers needs and protect the environment and society (PIRES ET AL., 2020).

In recent times, academic and consumer market research has concentrated on understanding how consumers engage in pro-environmental, sustainable and eco-friendly behavior to help combat climate change. Some studies (e.g., KRONROD ET AL., 2012) suggest that global environmental challenges can be addressed by making consumers responsible and consuming more eco-friendly products to reduce environmental harm. Therefore, environmental scientists and activists expect companies to ensure sustainable production and consumption. Thus, individuals need to adopt pro-environmental behavior (PEB) and sustainable consumption behavior (SCB) practices. Pro-environmental behavior refers as 'behavior that consciously seeks to reduce the negative impacts of their actions on the environment and build the world (KOLLMUSS & AGYEMAN, 2002, p. 240). Sustainable production involves looking at the whole cycle of production, using, disposing of, and recycling products instead of just how much gets used (WANG ET AL., 2019). Sustainable consumption is not about consuming less but consuming differently (QIN & SONG, 2022). Furthermore, sustainable consumption practices involve purchasing and consuming products in an environmentally responsible manner. Both sustainable production and sustainable consumption behavior are essential components of sustainable development (NEKMAHMUD ET AL., 2022). Sustainable production and consumption are part of the Sustainable Development Goals (SDGs) and focus on reducing negative environmental and health effects while encouraging eco-friendly lifestyles (UNITED NATIONS, 2015)¹. At the same time, increasing consumer engagement in pro-environmental behavior (PEB) and sustainable consumption behavior (SCB) reduces negative ecological impacts (ASLAM ET AL., 2020; HOSSAIN, NEKMAHMUD & FEKETE-FARKAS, 2022). To minimize CO₂ emissions and limit global climate change, it is essential to encourage pro-environmental behavior (VAN VALKENGOED, ABRAHAMSE & STEG, 2022) and sustainable consumption behavior. In previous studies, consumers' sustainable consumption behavior related to organic food, energy-efficient household products, green products, green transportation, and recyclable and reusable products has been shown to reduce environmental and climate change impacts. For example, the green products context (HWANG, 2022; NEKMAHMUD & FEKETE-FARKAS, 2020; OGIEMWONYI, 2022) stated that green products and organic food are becoming popular among consumers to reduce the environmental impact on health. As per the INTERNATIONAL ENERGY AGENCY (IEA)² in 2019, the residential sector used about 21% of the world's total energy consumption in 2017. Thus, energy-efficient products can significantly reduce household energy consumption, carbon emissions, and environmental sustainability. By using energy-efficient appliances, household consumers can play a crucial role in conserving energy (ABU-ELSAMEN ET AL., 2019; HOSSAIN, FEKETE-FARKAS &

¹ <https://sdgs.un.org/goals>

² <https://www.iea.org/reports/world-energy-outlook-2019>

NEKMAHMUD, 2022). Furthermore, consumer resource and conservation behavior, e.g., reducing water and electricity consumption, turning lights off in unused rooms, and using one's own bag when shopping, can support global climate change mitigation. Thus, it is urgent to know how consumers' sustainable consumption behavior supports mitigating climate change and protecting environmental issues. To fill these research gaps, this study examined consumers' sustainable consumption behaviors of green purchases and recycling & resource conservation behaviors.

I use the terms 'environmentally friendly products' and 'green products' interchangeably throughout the dissertation. The term 'to be *green*' is defined as participating in environmentally friendly actions, encompassing activities such as purchasing and using green products (POLONSKY, 2011). I define *green products* as 'products that consumers perceive to be environmentally friendly, whether due to the materials used, the production process, packaging, promotion, and so on'. At the same time, I define '*pro-environmental behavior*' as any action or behavior that promotes or supports the environment's well-being. I also define '*sustainable consumption behavior*' as socially and environmentally responsible actions when efficiently purchasing, utilizing and disposing of goods and services. I also encourage considering the total quality of life and preserving future generations' well-being. In this study, I categorize two sections of sustainable consumption behavior, including green purchase behavior and recycling & resource conservation behavior.

1.2 Problem Statement

One of the most significant challenges people face today is environmental degradation caused by unsustainable consumption patterns. Sustainable consumption patterns are a major concern across the globe. Scientists, researchers, journalists, and politicians share concerns about the environment's future. They claim that current consumption patterns are unsustainable. As a result, global environmental challenges and unsustainable consumption patterns can only be solved if consumers take responsibility for mitigating environmental hazards by purchasing more environmentally friendly items. Thus, this study attempts to investigate consumers' pro-environmental and sustainable consumption behavior, which helps mitigate climate change issues.

In 2015, the United Nations Sustainable Development Summit endorsed 17 SDGs to achieve a better sustainable future. These goals cover various aspects such as poverty, hunger, health, education, gender equality, water, sanitation, energy, environment, climate change, and social justice. Among these, SDG12 is particularly important, as it strives to promote sustainable

production and consumption patterns. SDG12 is the most critical goal in creating a more sustainable environment for individuals, communities, and the planet. After that, this research is worthy of knowing the influence factors that motivate consumers to adopt sustainable consumption behavior to support climate change mitigation. This research considers particular problems which the United Nations SDGs have mentioned as providing safe, nutritious, and sufficient food all year round (TG2.1), ensuring sustainable consumption and production patterns (G12), reducing substantially waste generation through prevention, reduction, recycling, and reuse (TG-12.5), implementing the 10-year framework of programs on sustainable production and consumption (TG12.1).

Besides the United Nations, other organizations, e.g., the European Commission, are concerned about environmental and sustainable consumption issues. Therefore, The European Union (EU) introduced the European Green Deal, a plan designed to establish sustainable products as the standard within the EU. This initiative seeks to encourage circular business models and empower consumers to embrace eco-friendly practices during the transition. As a result of these new regulations, products must meet criteria like being environmentally friendly, long-lasting, reusable, repairable, upgradable, easy to maintain, refurbishable, recyclable, and energy and resource-efficient (EUROPEAN COMMISSION, 2021)³. These global issues need to be solved through sustainable production and consumption.

Past research has shown that the primary causes of current ecological and environmental challenges are population growth and overconsumption. Excessive consumption negatively impacts the environment. People's activities are mainly negatively affected by environmental and climate issues. Alterations in our consumption patterns will substantially affect our ecological footprint (NEKMAHMUD & FEKETE-FARKAS, 2020). By consuming environmentally friendly and natural resource-based products and services, we can reduce greenhouse gas (GHG) emissions while establishing a sustainable economy and lifestyle worldwide. Pro-environmental behavior, sustainable production and consumption can help to reduce environmental problems. Therefore, this study tries to identify the key influential factors, influence path, and decision-making mechanisms that are affecting consumers' attitudes and sustainable consumption behavior.

Earlier studies (GÓMEZ-LLANOS ET AL., 2020; PAUL ET AL., 2016; SAARI ET AL., 2021; have primarily concentrated on investigating the factors influencing green purchase intentions, pro-environmental behaviors and sustainable consumption behaviors in developed countries, e.g., the USA, Australia, EU, Italy, Spain, and some developing countries, e.g., India, China, Turkey,

³ <https://www.consilium.europa.eu/en/policies/green-deal/>

South Africa, and so on. Still, there is a lack of studies on pro-environmental and sustainable consumption behaviors in developing countries. Despite this, Bangladesh is in the infant stage of investigating environmental concerns compared to other developing economies. Bangladesh is selected for this study since it is well known that the environmental issues of Bangladesh are poorly managed. Bangladesh is among the fastest-growing vulnerable nations globally regarding climate and environmental challenges (WORLD BANK, 2020)⁴. Energy, food, and resource conservation sectors are facing several challenges. For the government to achieve sustainable economic growth, it must address this environmental challenge. Moreover, for political reasons, Bangladesh was a late adopter of the Green Revolution. Bangladesh's government strives to achieve the Sustainable Development Goals (SDGs) by 2030. On the other hand, different industries, including textile, leather, agricultural, food manufacturing, plastics, cosmetics, and so on, produce environmentally friendly products to fulfill the needs of particular green consumer groups. Green items are gradually being included in company product lines in Bangladesh. Alongside, over the past few decades, consumer awareness regarding the environment has increased, leading them to actively pursue products or services labeled as "green" or "ecologically sustainable" (OGIEMWONYI, 2022; SAARI ET AL., 2021; SADIQ ET AL., 2022). This research also investigates which motives influence consumers' sustainable consumption in Bangladesh. The poor management of environmental issues and the fastest-growing economy, quality of life, income, expenditure, ecological awareness, and lifestyle make Bangladesh an ideal study (WARIS & AHMED, 2020). Therefore, environmental marketing can support the achievement of the SDGs, e.g., ensuring sustainable food production, food security, improving nutrition, using energy-efficient products, and sustainable tourism in Bangladesh—the study attention to well-educated and young consumers in Bangladesh to understand their sustainable consumption behavior. According to UNFPA (2022), 27 percent (47.6 million) of the total population in Bangladesh are young (10-24 years)⁵. So, it's crucial to grasp how young, educated individuals view environmental actions and choices to buy green products. The young generation are the future consumers and voices of society, and they tend to care more about social and environmental problems (JOSHI & RAHMAN, 2017).

To enhance our knowledge in the environmental marketing field, it is crucial to gain a deeper understanding of consumers' pro-environmental and sustainable consumption behaviors, particularly concerning green products. This study aims to address this research gap and develop an integrated model based on the theory of planned behavior (TPB) and attitude-behavior-context

⁴ <https://www.worldbank.org/en/country/bangladesh/overview>

⁵ <https://www.unfpa.org/data/world-population/BD>

(ABC) model, which measures the same consumer sustainable consumption of green products and resource conservation behavior within a single model.

1.3 Significance of the study

This study aims to investigate the influential critical factors and decision-making mechanisms that are affecting consumers' attitudes and sustainable consumption behavior. There are only a few studies on sustainable consumption behavior in Bangladesh. Still, there is a lack of understanding and awareness regarding green products. More information about green products will assist consumers in improving cognitive attitudes about green products (RAHMAN & REYNOLDS, 2019). The primary objective of this research is to assess the sustainable consumption habits of young consumers in Bangladesh. This research concentrates explicitly on consumers who have previously bought green products. Consequently, this study aims to bridge the research gap by reviewing the literature on green consumption and investigating the factors that impact consumers' decisions regarding sustainable consumption in Bangladesh. According to my knowledge, this is the first empirical study that measures consumers' sustainable consumption behavior in Bangladesh. This study first developed an integrated model that measures the same consumer's sustainable consumption behavior of green products and recycling & resource conservation behavior in the single model.

Additionally, the objective of this research is to make contributions to existing theories. The study achieves this by introducing a novel conceptual framework that builds upon the concepts of the Theory of Planned Behavior (TPB) and the Attitude-Behavior-Context (ABC) model. Most previous studies applied the TPB to measure pro-environmental and sustainable consumption behavior. Only a few studies used the attitude-behavior-context model to examine sustainable consumption behavior (QIN & SONG, 2022; SADIQ ET AL., 2022; WARIS & AHMED, 2020). Yet, studies investigating consumer sustainable consumption behavior and climate change mitigation are still in their infancy. My previous research focused on green purchases and sustainable consumption behavior in a developed country context. In this study, I aim to make a valuable contribution by addressing these research gaps and offering a thorough understanding of the two dimensions of sustainable consumption behaviors. After the critical analysis of the TPB and ABC theory, I attempt to build a new research model that incorporates both internal and external contextual motivation to investigate the influencing factors and decision-making mechanisms of sustainable consumption behaviors and analyze heterogeneity among different types of sustainable consumption behaviors.

This study has complemented SEM (Structural equation modeling) with (Necessary condition analysis) NCA to further investigate the relationship between internal and external influential constructs of consumers' sustainable consumption behaviors as noble methodological contributions in the marketing and consumer psychology. This research offers valuable insights in theory and practice for comprehending consumers' eco-friendly purchase attitudes and behaviors in a developing nation. Gaining insight into the attitudes and buying habits of young people regarding eco-friendly purchases would empower marketers and manufacturers to more effectively adapt to consumer preferences, resulting in improved, more secure, and healthier products.

II. RESEARCH OBJECTIVES

Based on the research problems and research gaps, the main objectives of this study are: To identify the key influential factors, influence path, and decision-making mechanisms that are affecting Young consumers' attitudes and sustainable consumption behavior (SCB); To develop an integrated model that measures the two sections of sustainable consumption behaviors, including green purchase behavior, and recycling & resource conservation behavior.

Besides the main objectives, a few sub-objectives have been provided to understand the research better:

1. To analyze the literature regarding the consumer's pro-environmental and sustainable consumption behavior for green products and recycling & resource-conservation products.
2. To develop a new and validate integrated model for measuring consumers' sustainable consumption behavior based on the theory of planned behavior (TPB) and attitude-behavior-context (ABC) model.
3. To apply the proposed integrated model to examine the Young consumers' sustainable consumption behavior in Bangladesh.
4. To investigate how ecological motives, positive motives, and negative motives influence consumer attitudes and sustainable consumption behavior.
5. To examine the moderating effect of ecological motives on the interaction between dependent and independent variables.
6. To validate the proposed conceptual framework using the combined approaches of the structural equation model (SEM) and the Necessity condition analysis (NCA).

2.1 Research Question

Based on the research objectives, this research answers the following questions:

1. What are the main factors of sustainable consumption behavior that are affecting the Young consumers' purchase decision of green products in Bangladesh?
2. What are the motivations for changing behavior towards sustainable consumption in Bangladesh?
3. What are the relationships among the variables of the proposed model for green purchase behavior and recycling & resource conservation behavior?
4. What are the current consumers' sustainable consumption behaviors in purchasing green products and recycling & resource conservation behavior in Bangladesh?

2.2 Hypotheses Development

The study comprises the following hypotheses to examine the direct effects of the variables.

Hypothesis 1a: Attitude has a positive and significant effect on green purchase behavior

Hypothesis 1b: Attitude has a positive and significant effect on recycling & resources conservation behavior

Hypothesis 2a: Subjective norm has a positive and significant effect on green purchase behavior

Hypothesis 2b: Subjective norm has a positive and significant effect on recycling & resources conservation behavior

Hypothesis 3a: Perceived behavior control has a positive and significant effect on green purchase behavior

Hypothesis 3b: Perceived behavior control has a positive and significant effect on recycling & resources conservation behavior

Hypothesis 4a: Green perceived value positively influences consumers' green purchase behavior

Hypothesis 4b: Green perceived value positively influences consumers' recycling & resources conservation behavior

Hypothesis 5a: Ecological motives positively influence consumers' attitudes toward sustainable consumption behavior

Hypothesis 5b: Ecological motives positively influence consumers' green purchase behavior

Hypothesis 5c: Ecological motives positively influence consumers' recycling & resource conservation behavior

Hypothesis 6a: Positive motives have a positive and significant effect on consumer attitude toward sustainable consumption behavior

Hypothesis 6b: Positive motives have a positive and significant impact on green purchase behavior

Hypothesis 6c: Positive motives have a positive and significant impact on recycling & resources conservation behavior

Hypothesis 7a: Negative motives have negatively and significant effect on consumer attitude toward sustainable consumption behavior

Hypothesis 7b: Negative motives have negatively and significant impact on green purchase behavior

Hypothesis 7c: Negative motives have negatively and significant impact on recycling & resources conservation behavior

This research aims to examine consumers' sustainable consumption behavior and observe how internal and external contextual motives actively influence consumers' sustainable consumption behavior. This study proposes a theoretical framework for evaluating consumers' sustainable consumption behavior by integrating the theory of planned behavior (TPB) and attitude-behavior-context (ABC) with additional variables (perceived value, ecological motives, positive motives and negative motives). Based on the theories, literature and proposed hypotheses, the conceptual framework is presented in Figure 1. The research framework illustrates the interaction between the independent variables (attitude, subjective norms, perceived behavioral control, perceived value, ecological motives, positive motives, and negative motives), dependent variables (consumer green purchase behavior and recycling & resources conservation behavior), the mediating (ecological motives, positive motives, and negative motives). Figure 1 also presents the details of formative and reflective constructs with proposed hypotheses. Whereas climate concern and environmental knowledge combined to shape the formative construct known as ecological motives. Meanwhile, green marketing tools, green trust, government support, and positive word-of-mouth contribute to the formative construct of positive motives. On the other hand, high price sensitivity and concern about greenwashing are integrated into the formative construct of negative motives. Finally, two sections, green purchasing behavior, and recycling & resource conservation behavior, have been incorporated into the broader sustainable consumption behavior (SCB) field. Building upon a thorough evaluation of TPB and ABC theory, this study shows a novel conceptual framework to researchers for seeking a more profound comprehension of consumers' engagement in sustainable practices, including the consumption of green products and behavior related to recycling and resource conservation.

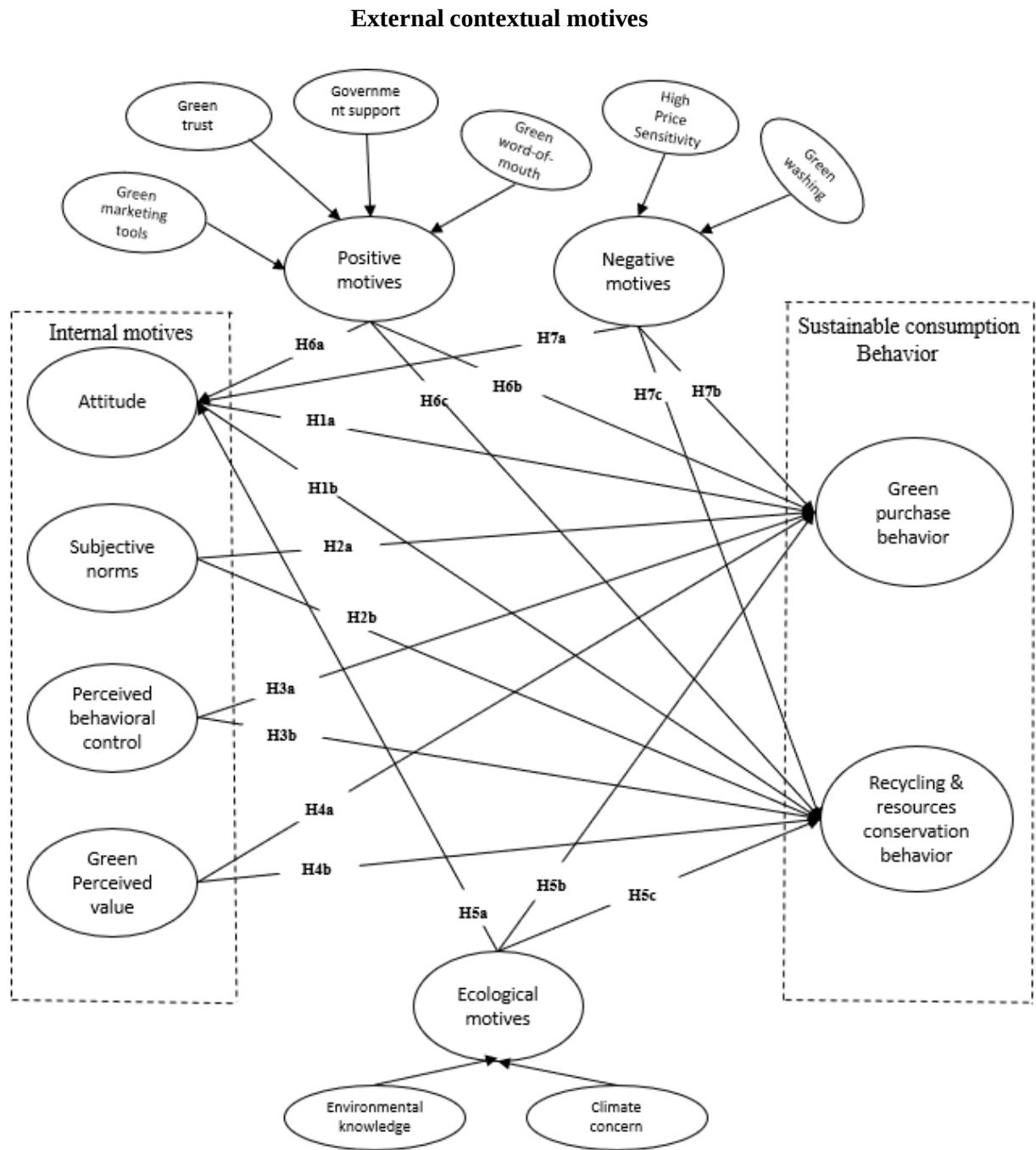


Figure 1 proposed framework with hypotheses

(Source: Authors' own construction)

III. METHODOLOGY

3.1 Data Collection and Sample

This study was conducted in an emerging and developing country context. The study location is Bangladesh, an emerging economy and over-populated country of 167.9 million people (WORLD ECONOMICS, 2022)⁶, A structured survey questionnaire was employed to gather data from "Y consumers" who have prior experience buying environmentally friendly items like organic and locally sourced food, recyclable and reusable products, energy-efficient household items, and similar products.

Respondents were 20-30 years old. The research focused on young consumers of Bangladesh because they are more adept at participating in the survey due to their heightened awareness and inclination to purchase eco-friendly products. Following the selection criteria, data was gathered via an online survey. The questionnaires were distributed to a large group of respondents, applying a convenience sampling method over four months from October 2022 to February 2023.

I asked participants whether they had prior involvement in purchasing eco-friendly products. They were then permitted access to complete questions if their response was yes. To gather data from Bangladesh, Google Forms was employed to conduct surveys through social media channels, e.g., Facebook and email. To ensure a comprehensive geographic representation of the Bangladeshi population, it has been surveyed seven Universities in five major cities (divisions).

To collect data from those universities, I contacted faculty members of those institutions and asked them to share the online questionnaire with their students. Moreover, it posted Google form questionnaires to the social media groups of those universities because it is more convenient to reach the respondents. As a result, it was received 1530 respondents from the institutions. Data that were incomplete, irrelevant, or missing, age below 20 years and above 31 years of respondents were omitted from the analysis. Thus, 1344 valid responses were finally used for statistical analysis. HAIR ET AL. (2010) recommended the criteria for determining the sample size for the structural equation model. HAIR ET AL. (2014) stated that the sample size should be at least ten times the parameter/items. Since this analysis included 54 items (54x10), the sample size 540 was at least needed to run the Structure equation model. This study considered 1344 sample sizes from Bangladesh, filling the study criteria.

⁶ <https://www.worldeconomics.com/Demographics/Population/Bangladesh.aspx>

3.2 Measurement of Constructs

To measure sustainable consumption behavior, I consider constructs in the proposed model, including constructs of the TPB and ABC model. For instance, attitude, subjective norms, perceived behavior control, perceived value, ecological, positive, and negative motives. This study utilizes a quantitative methodology, employing a self-administered survey questionnaire divided into three sections. The first section focused on collecting socio-demographic information, such as gender, age, educational background, nationality, and income level. The second part had general questions about the respondent's sustainable consumption habits. In this part, the respondents were also asked if they studied modules related to sustainable consumption behavior and climate change issues as part of their coursework and how that environmental-related module/lecture is helping to change their attitude and behavior toward environmental protection. The final section of the questionnaire consisted of fourteen constructs encompassing 54 items that delved into consumers' SCB of green products, recycling, & resource conservation behavior. All these constructs and items were adopted from existing literature. Table 1 presents the measurement constructs and scales with literature sources.

All the items within the constructs were evaluated using a "five-point Likert scale," where respondents could express with ranging from "strongly disagree" (1) to "strongly agree" (5).

The survey questionnaire was developed in English. I used the survey questionnaire in English and did not convert it into Bengali because some of the terms used in environmental terminology are difficult to convey to respondents in their national language. Furthermore, the respondents of this study were university students, and their program was in English instruction. The author proofreads and modifies the questionnaire to make it more understandable for the respondents.

Before conducting the main survey, a pilot study was carried out to assess the reliability of the survey instrument using SPSS version 27. The questionnaire was verified through exploratory factor analysis (EFA) and confirmatory composite analysis (CCA) with 100 samples. Cronbach's alpha, The Kaiser-Meyer-Olkin (KMO) test, Barlett's test of sphericity (BTS) are fulfilled the study's research hypotheses and theoretical goals.

Table 1 Measurement constructs and items

Constructs	Items	Items descriptions	Sources
Environmental knowledge	EK1	I have good knowledge about sustainable consumption and environmental issues	(JOSHI & RAHMAN, 2017; MOSTAFA, 2007)
	EK2	EK2: I know about the sustainability or environmentally friendly symbols/signs used on product packages	
	EK3	I am knowledgeable about sustainable consumption (e.g., green products, organic food, or energy-saving products)	

Climate concern	CC1	I am very worried about the effects of the world's climate change	(JOSHI & RAHMAN, 2017; MOSTAFA, 2007)
	CC2	I am willing to reduce my consumption to protect against climate change	
	CC3	Major political and social changes are necessary to protect the natural environment and climate change	
Attitude	AT1	I believe that sustainable consumption behavior will help in reducing pollution and improving the environment	(WANG ET AL., 2018)
	AT2	I believe that sustainable consumption will reduce the waste of natural resources	
	AT3	I believe that sustainable consumption by me will help in conserving natural resources	
	AT4	I feel good/satisfied about myself when I am involved in sustainable consumption	
Subjective norms	SN1	My family expects me to engage in sustainable consumption, for example purchasing environmentally-friendly products	(WANG ET AL., 2018)
	SN2	My friends/neighbors encourage me to adopt sustainable consumption behavior	
	SN3	My society expects me to engage in sustainable consumption behavior	
Perceived behavior control	PBC1	I have knowledge, information, opportunities, and willingness to purchase environmentally-friendly products and adopt sustainable consumption behavior	(CHEUNG & TO, 2019; SUN & WANG, 2020; WANG ET AL., 2018)
	PBC2	I can make my own decisions about purchasing environmentally-friendly products	
	PBC3	I can afford to purchase environmentally-friendly products	
Green perceived value	GPV1	I think the quality of environmentally-friendly products would be reliable and good quality	(NEKMAHMUD, RAMKISSOON & FEKETE-FARKAS, 2022; WANG ET AL., 2018)
	GPV2	Environmentally-friendly products offer good value/price for me	
	GPV 3	I think sustainable consumption behavior makes me feel good and creates a good image in other people's eyes	
	GPV4	I think sustainable consumption offer more environmental benefit than non-green products	
	GPV5	Sustainable consumption behavior offers more health benefits than non-green products	
Green marketing tools (advertising, eco-label & eco-brand)	GMT1	Environmental advertisement enhances my knowledge about green/sustainable products	(CHI, 2021; CHIN ET AL., 2018)
	GMT2	Environmental advertisements guide customers in making awareness of green purchasing decisions and sustainable consumption	
	GMT3	I am aware of the eco-label	
	GMT4	The eco-label/ logo is easily identifiable to me	
	GMT5	I am aware of the eco-brands	
	GMT6	Eco-brand is a symbol of product reliability and trustworthy	
Green trust	GT1	I think environmentally-friendly products are generally reliable and trustworthy	(CHEN, 2010)
	GT2	Environmentally-friendly products meet my expectations regarding environmental issues	
	GT3	I feel that environmentally-friendly products keep promises and commitments to environmental safety and protection	

Government support	GS1	Government rules and regulations make me tend toward sustainable consumption	(DING ET AL., 2022)
	GS2	Government is strongly supporting the development of sustainable consumption	
	GS3	Government encourages people to purchase environmentally-friendly products and adopt sustainable consumption	
Green word-of-mouth	GWoM1	Due to environmental image, sustainable consumption habits are highly recommended by others (e.g., sports person, actors, singers, influencer person)	(ZHANG ET AL., 2018)
	GWoM2	Due to its environmental performance, environmentally-friendly products have received positive feedback	
	GWoM3	Social media (e.g., Facebook) have enhanced knowledge about sustainable consumption and environmentally-friendly products	
	GWoM4	Newspapers, Magazines, and social media reviews are good sources of promoting environmental issues	
High price sensitivity	HPS1	The environmentally-friendly products are not reasonably price	(TREGEAR ET AL., 1994)
	HPS2	I am willing to spend extra money to purchase environmentally-friendly products that have good quality	
	HPS3	I think the prices of environmentally-friendly products are in line with the value of the products	
	HPS4	Price is not an important factor when I decide to buy environmentally-friendly products	
Greenwashing concern	GWC1	I am concerned that green products are not produced with environmentally friendly materials in sustainable ways	(ZHANG ET AL., 2018)
	GWC2	I am concerned that environmentally-friendly products are only pretending/misrepresent their green image	
Green purchase behavior	GPB1	I often buy organic food that contains no or fewer chemical ingredients	(SUN & WANG, 2020; WANG ET AL., 2018)
	GPB2	I prefer organic food over non-organic food when the product quality is similar	
	GPB3	I tend to buy environmentally-friendly/sustainable products	
	GPB4	I often buy products that use recycled/recyclable packaging	
	GPB5	I try to buy energy-saving household appliances that don't harm the environment	
	GPB6	I have purchased energy-saving household appliances because they use less electricity than other non-energy-saving products	
	GPB7	I hope to use energy-saving products as much as possible	
Recycling and resource conservation behavior	RRCB1	I am willing to recycle used appliances	(QIN & SONG, 2022; RAMAYAH ET AL., 2012)
	RRCB2	I am willing to recycle used clothes	
	RRCB3	I intend to reduce water consumption (Turn off the tap when soaping up/cleaning teeth/ washing dishes)	
	RRCB4	I am willing to save energy when it is possible, e.g., by turning off the lights	

3.3 Data analysis procedure and statistical tools

This study used statistical methods to analyze the primary data. SPSS 27 version was used to measure the descriptive statistics. Partial least square structural equation modeling (PLS-SEM)

was applied to test the hypotheses and Necessary Condition Analysis (NCA) was also applied to identify necessary conditions by using the latest version of SmartPLS (v4.0.9.6).

3.4 Model Specification and data analysis

To investigate the proposed framework, the combination of the Partial least squares–Structural Equation Modeling (PLS-SEM) and Necessary Condition Analysis (NCA) technique was applied to understand consumer SCB deeply.

3.4.1 Partial Least Square-Based Structural Equation Modeling

This study employed the partial least squares–structural equation modeling (PLS-SEM) method to examine the proposed framework. The primary goals of utilizing PLS-SEM in this study include uncovering latent variables with multiple items, scrutinizing complex model structures and variations, as well as effectively assessing complex theoretical models with limited empirical data. Consequently, PLS-SEM proves suitable for this study, serving as a valuable tool for validating and testing the conceptual model. This study was used by integrating formative and reflective measurement models.

3.4.2 Necessary condition analysis (NCA)

Necessary Condition Analysis (NCA) is an innovative approach and analytical method used to identify essential prerequisites (DUL, 2016). The NCA data analysis tool was designed to use necessary logic to enhance conventional analytical methods such as correlation, multiple regression, and structural equation modeling (DUL, 2016; RICHTER ET AL., 2020). Necessary condition analysis (DUL, 2016) is based on the logic that certain conditions are necessary (but insufficient) to achieve a specific outcome. In contrast to these regressions and SEM techniques, NCA attempts to predict the absence of an outcome rather than its presence (DUL, 2022). The researchers benefit from NCA in two ways: 1) NCA can calculate ceiling lines and bottleneck tables, which aid in visualizing and interpreting the relationships between predictor and outcome variables. 2) NCA calculates parameters like the accuracy of the ceiling line and the effect sizes associated with necessary conditions, and it incorporates significance testing to prevent calculation errors (DUL, 2016).

3.5 Research Procedure Flowchart

This study represents a mixture of conclusive and exploratory research approaches. I followed step-by-step guidelines of flow charts using PLS-SEM for analyzing the structural

equation modeling, hypothesis testing, and measurement model. The steps are rooted in the techniques outlined in the influential paper 'A Primer on Partial Least Squares Structural Equation Modeling' by (HAIR ET AL., 2014), widely regarded as a foundational reference for PLS-SEM methodology. Therefore, HAIR ET AL. (2014) stated that the standard papers on methodology should consider PLS-SEM and NCA the following steps, as seen in Figure 2, and depict the research flowchart used in this study to conduct the research.

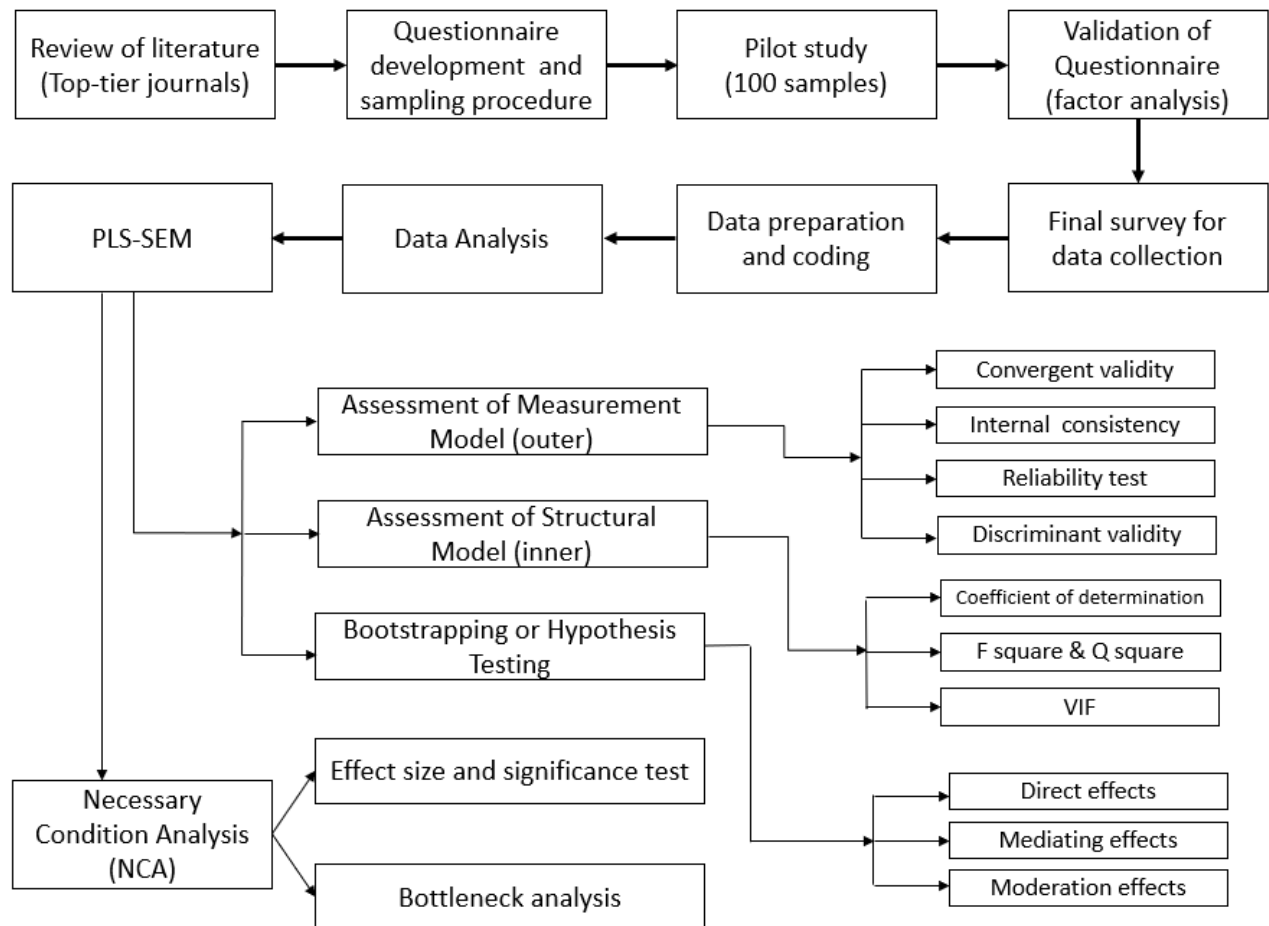


Figure 2 Research flowchart (Sources: authors' own construction)

IV. RESULTS AND DISCUSSION

4.1 Demographic Profile of the Respondents

In this study, 1344 respondents were gathered for final analysis where 66% (n = 888) percentage of respondents were male, and 34% (n = 456) percentage of respondents were female. 88 percent were 20–25 years old (n = 1182), and 12 percent were 25–30 years old (n = 161). The results also show that the majority 87% of respondents are pursuing a Bachelor's education (n = 1176) and 13 % of the respondents belong to the category of Master's education (n = 234). In Bangladesh, young

individuals with higher educational degrees (graduates) are more inclined to purchase green products as they tend to be more environmentally aware and knowledgeable about such products. Results show that the budget for monthly expenses whereas 36% of respondents spend money for 41-70 USD for their monthly consumption ($n = 492$). 25% of respondents spend money for less than 40 USD ($n = 336$), 15% of respondents spend money for 71-100 USD ($n = 204$), 15% of respondents spend money for more than 150 USD ($n = 192$), and 9% of respondent spend money for 101-130 USD for their monthly consumption habits ($n = 120$).

4.2 Hypothesis and Bootstrapping Testing

Table 2 and Figure 3 present the effects of the path coefficients, and t statistics. After evaluating the measurement model to establish reliability and validity, the proposed theoretical model's soundness was confirmed. Subsequently, the predictive relevance of the structural model was assessed. The data was then used to investigate the structural model as well as all hypotheses. PLS-SEM and bootstrapping methods were applied to test the hypotheses. Bootstrapping is a non-parametric technique that employs resampling methods to measure the significance of Partial Least Squares (PLS) coefficients, as explained by (HAIR ET AL., 2014). The bootstrapping method, along with p values and t statistics, can be used to evaluate the significance of the path coefficients.

I tested hypotheses using a two-tailed approach at a 95% confidence level. To explore these hypotheses, I employed bootstrapping with 10,000 sub-samples. I opted for a no-sign adjustment preference and utilized a bias-corrected and accelerated (BCa) bootstrap confidence interval.

There are seventeen hypotheses were developed for the investigation of the research model. As a result, the hypothesis can be accepted or rejected by calculating the statistical significance of each path coefficient. Table 2 shows the results of the hypotheses for consumer sustainable consumption behavior. The results reveal that fifteen hypotheses are supported, and two hypotheses are rejected.

The outcomes of the path coefficients and t values are indicators that attitude has a negative relationship with GPB ($\beta = -0.031$, t-value = 1.107, $p > 0.05$) and RRCB ($\beta = 0.035$, t-value = 1.256, $p > 0.05$). Therefore, H1a and H1b are rejected. Subjective norm has a significantly influence on GPB ($\beta = -0.079$, t-value = 3.648, $p < 0.001$) and RRCB ($\beta = 0.093$, t-value = 3.773, $p < 0.001$). So, H2a and H2b are supported. Perceived behavioral control has a positive and significant effect on green purchase behavior ($\beta = 0.064$, t-value = 2.365, $p < 0.05$) and RRCB ($\beta = 0.070$, t-value = 2.459, $p < 0.05$) Thus, H3a and H3b are supported. The path results show that green perceived value has a positive significant influence on GPB ($\beta = 0.270$, t-value = 7.829, $p < 0.001$), and RRCB ($\beta = 0.176$, t-value = 4.740, $p < 0.001$). Therefore, H4a, and H4b are supported.

Ecological motive has positive and significant influence on attitude ($\beta = 0.464$, t-value = 11.446, $p < 0.001$), GPB ($\beta = 0.169$, t-value = 5.388, $p < 0.001$), and RRCB ($\beta = 0.290$, t-value = 9450, $p < 0.001$). Thus, H5a, H5b, and H5c are supported.

Positive motive has positive and significant effects on consumer attitude ($\beta = 0.136$, t-value = 3.018, $p < 0.05$), GPB ($\beta = 0.189$, t-value = 5.658, $p < 0.001$), and RRCB ($\beta = 0.097$, t-value = 2.684, $p < 0.05$). Thus, H6a, H6b and H6c are supported.

Finally, the bootstrapping paths show that negative motive has negative impact and influence on attitude ($\beta = -0.152$, t-value = 3.185, $p < 0.001$). Therefore, H7a is supported. Moreover, negative motive has negative and significant influence on GPB ($\beta = -0.293$, t-value = 11.099, $p < 0.001$) and RRCB ($\beta = -0.162$, t-value = 5.481, $p < 0.001$). Thus, H7b and H7c are also supported.

Table 2 the effects of the structural model (P value and T value)

	Relationships	Std β	mean (M)	Standard deviation	T statistics	P values	2.5%	97.5%	Results
HN									
1a	AT -> GPB	-0.031	-0.031	0.028	1.107	0.268	-0.086	0.025	Not supported
1b	AT -> RRCB	0.035	0.036	0.028	1.256	0.209	-0.017	0.093	Not supported
2a	SN -> GPB	-0.079	-0.079	0.022	3.648	0.000*	-0.122	-0.037	Supported
2b	SN -> RRCB	0.093	0.093	0.025	3.773	0.000*	0.045	0.142	Supported
3a	PBC -> GPB	0.064	0.064	0.027	2.365	0.018	0.013	0.118	Supported
3b	PBC -> RRCB	0.070	0.070	0.029	2.459	0.014	0.013	0.126	Supported
4a	GPV -> GPB	0.270	0.269	0.034	7.829	0.000*	0.202	0.336	Supported
4b	GPV -> RRCB	0.176	0.175	0.037	4.740	0.000*	0.104	0.250	Supported
5a	EM -> AT	0.464	0.462	0.041	11.446	0.000*	0.381	0.539	Supported
5b	EM -> GPB	0.169	0.168	0.031	5.388	0.000*	0.107	0.229	Supported
5c	EM -> RRCB	0.290	0.289	0.031	9.450	0.000*	0.228	0.348	Supported
6a	PM -> AT	0.136	0.140	0.045	3.018	0.003**	0.054	0.229	Supported
6b	PM -> GPB	0.189	0.190	0.033	5.658	0.000*	0.124	0.254	Supported
6c	PM -> RRCB	0.097	0.099	0.036	2.684	0.007**	0.029	0.170	Supported
7a	NM -> AT	-0.152	-0.150	0.048	3.185	0.001*	-0.242	-0.056	Supported
7b	NM -> GPB	-0.293	-0.292	0.026	11.099	0.000*	-0.343	-0.240	Supported
7c	NM -> RRCB	-0.162	-0.161	0.030	5.481	0.000*	-0.218	-0.103	Supported
Note: *P<0.001**P<0.05									

Source: Author's own work based on SmartPLS results

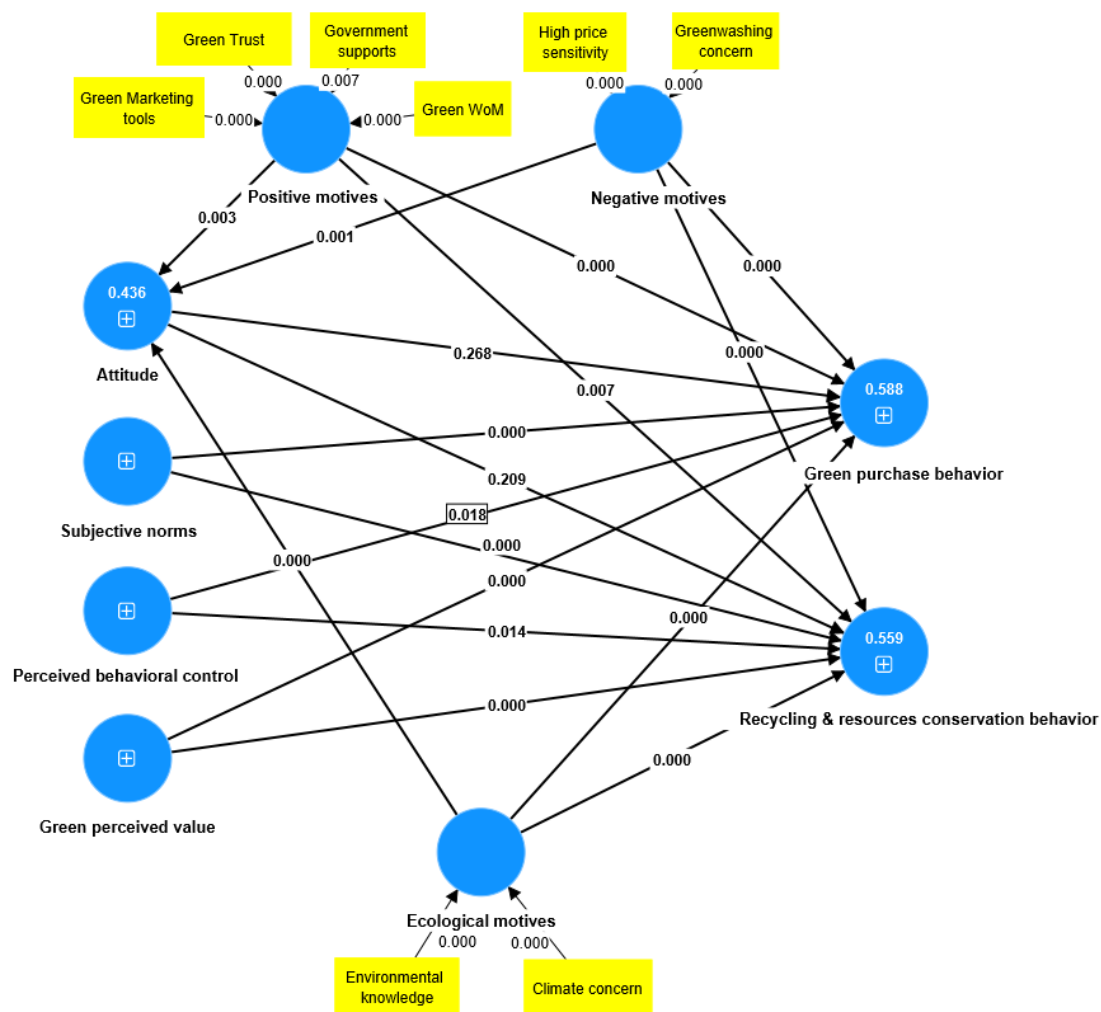


Figure 3 The results of the structural model, path coefficients (p value), and R -square values

Source: Author's own work based on SmartPLS

4.3 Testing for Mediation: indirect and total effects

In Table 3, PLS bootstrap resampling was employed to evaluate the mediating roles of consumer attitude in relation to the independent and dependent variables within the model. The result shows that the mediating role of attitude has an insignificantly indirect effect on EM and GPB ($\beta = 0.013$, $p > 0.05$) and RRCB ($\beta = 0.013$, $p > 0.05$). In the context of positive motives, attitude has not relationship with GPB ($\beta = 0.004$, $p > 0.05$) and RRCB ($\beta = 0.005$, $p > 0.05$). In the context of negative motives, the path results present that attitude has low mediation indirect effect between NM & GPB ($\beta = 0.004$, $p > 0.05$), and NC & RRCB ($\beta = 0.005$, $p > 0.05$).

Table 1 Results of the mediating investigation (indirect and total effects)

Indirect effects	Std β	T statistics	P-values	Support
EM -> AT -> GPB	0.013	1.088	0.276	No
EM -> AT -> RRCB	0.013	1.242	0.214	No
PM -> AT -> GPB	0.004	0.946	0.344	No
PM -> AT -> RRCB	0.005	1.043	0.297	No
NM -> AT -> GPB	0.004	1.1	0.271	No
NM -> AT -> RRCB	0.005	1.085	0.278	No

Note: $P < 0.05$

Source: Author's own work based on SmartPLS results

4.4 Testing for moderation effects

Table 4 shows a moderating effect of ecological motives on the interaction between dependent and independent constructs. Ecological motives moderate the significant positive relationship between AT & GPB ($\beta_1 = 0.088$, $p < 0.05$), whereas the P -value lowers the ideal value of 0.05, implying the results are supported. Nevertheless, Ecological motives moderates the significant negative relationship between AT & RRCB ($\beta_1 = -0.007$, $p > 0.05$) and it is not supported. Ecological motives moderate the significant positive relationship between SN & RRCB ($\beta_1 = -0.070$, $p < 0.05$), thus, it is supported. Nevertheless, Ecological motives moderate the significant negative relationship between SN & GPB ($\beta_1 = -0.039$, $p > 0.05$) whereas the P -value exceeded the ideal value of 0.05, implying the results are not supported. Ecological motives moderate a significant positive relationship between PBC & GPB ($\beta_1 = 0.097$, $p < 0.05$), implying the results are supported. But Ecological motives negatively moderates the PBC & RRCB ($\beta_1 = -0.036$, $p > 0.05$), therefore, it is rejected.

Moreover, GPV & GPB ($\beta_1 = -0.168$, $p < 0.05$), have significant interactions with the moderate variable of Ecological motives, implying that when EM is high, the interaction between SN & GPI, PBC & GPI, is considerably better than when it is low. GPV and RRCB ($\beta_1 = 0.006$, $p > 0.05$) have insignificant interactions with the moderate variable of Ecological motives. Thus, it is not supported.

Table 2 Results of moderation investigation

Relationship	β	Mean	Standard deviation	T statistics	P values	Results
EM x AT -> GPB	0.088	0.089	0.022	3.960	0.000	Supported
EM x AT -> RRCB	-0.007	-0.007	0.021	0.328	0.743	Not supported
EM x SN -> GPB	-0.039	-0.038	0.024	1.646	0.100	Not supported
EM x SN -> RRCB	-0.070	-0.069	0.028	2.469	0.014	Supported
EM x PBC -> GPB	0.097	0.091	0.029	3.364	0.001	Supported
EM x PBC -> RRCB	-0.036	-0.032	0.037	0.977	0.329	Not supported
EM x GPV -> GPB	-0.168	-0.165	0.024	7.004	0.000	Supported
EM x GPV -> RRCB	0.006	0.003	0.033	0.179	0.858	Not supported

Note: $P < 0.05$

Source: Author's own work based on SmartPLS result

4.5 Importance-Performance Map Analysis

The importance-performance map analysis (IPMA) expands on the results of PLS-SEM by considering the performance of each component, and it assists researchers in identifying constructs with relatively high importance but low effectiveness as independent variables (HAIR ET AL., 2017). The results show that climate concern, attitude, green perceived value, green marketing tools, green trust and perceived behavioral control are the most important factors in defining sustainable consumption behavior of green purchase behavior and recycling & resource conservation behavior. Green WoM, environmental knowledge, subjective norms and government support have intermediate levels of importance in determining both green purchase behavior and recycling & resource conservation behavior. Negative motives particularly, greenwashing concern and high price sensitivity have low levels of importance in determining sustainable consumption behavior of green purchase behavior and recycling & resource conservation behavior.

4.6 Results of Necessary condition analysis (NCA)

The Necessary Condition Analysis (NCA) has complemented PLS-SEM to further investigate the relationship between internal and external influential constructs of sustainable consumption behavior. This research follows the guidelines of NCA established by (RICHTER ET AL., 2020), with the latent variable scores of the independent constructs of internal and external motivation,

as well as overall sustainable consumption behavior, acquired through PLS-SEM, serving as a starting point for NCA.

4.6.1 Effect size and significance testing

First, the effect sizes (d) of the latent variable scores were investigated in this study, with their statistical significance tested using a suggested random sample size of 10,000 (DUL, 2016; 2021). According to DUL 2(021), three criteria need to be met for a circumstance to be considered necessary: i) theoretical support, ii) effect size $d > 0$, and iii) a low p-value (p). Table 5 show the effect size of NCA. The NCA results indicate that AT, SN, PBC, GPV, EM, PM, NM, meaningful ($d \geq 0.1$) and significant ($p < 0.05$) necessary conditions for SCB and accuracy of over 90%. Negative affect did not show any necessary effect on either of them.

Table 5 Results of effect size and significance test

Determinants	Outcomes	Ceiling lines	Effect size (d)	P	Accuracy
Attitude	GPB	CE-FDH	0.000	1.000	100%
	RRCB	CE-FDH	0.017	0.004	100%
Subjective norms	GPB	CE-FDH	0.000	1.000	100%
	RRCB	CE-FDH	0.217	0.000	100%
Perceived behavior control	GPB	CE-FDH	0.079	0.000	100%
	RRCB	CE-FDH	0.201	0.000	100%
Green perceived value	GPB	CE-FDH	0.261	0.000	100%
	RRCB	CE-FDH	0.290	0.000	100%
Ecological motives	GPB	CE-FDH	0.044	0.000	100%
	RRCB	CE-FDH	0.177	0.000	100%
Positive motives	GPB	CE-FDH	0.215	0.000	100%
	RRCB	CE-FDH	0.260	0.000	100%
Negative motives	GPB	CE-FDH	0.000	1.000	100%
	RRCB	CE-FDH	0.000	1.000	100%

* $p < .05$, ** $p < .01$, *** $p < .001$.

Source: Author's own work based on SmartPLS-NCA results

4.6.2 Bottleneck analysis

This study conducted a bottleneck analysis, enabling a comprehensive assessment of each prerequisite. Table 6 shows the bottleneck analysis. The utilization of a bottleneck technique assists in defining the critical threshold levels of necessary conditions required to achieve a particular level of outcomes related to consumer sustainable consumption behavior, with the aim of mitigating climate change. To achieve a high level of SCB (GPB and RRCB), (>50%), five prerequisites must be met: subjective norm must be at least 42%, perceived behavior control must be at least 48%, green perceived value must be at least 42%, ecological motive must be at least 30%, positive motives must be at least 18%. The results also show that negative motives are not eligible to achieve any level of SCB.

Table 6 Bottleneck table (percentages) for SCB

Bottleneck SCB	Attitude	Subjective norms	Perceived behavior control	Green perceived value	Ecological motives	Positive motives	Negative motives
0	NN	NN	NN	NN	NN	NN	NN
10	NN	NN	NN	NN	NN	6.0	NN
20	NN	NN	NN	NN	12.0	12.0	NN
30	NN	NN	NN	NN	12.0	18.0	NN
40	NN	NN	NN	NN	12.0	18.0	NN
50	NN	42.0	48.0	42.0	30.0	18.0	NN
60	NN	42.0	48.0	42.0	30.0	18.0	NN
70	12.0	42.0	54.0	54.0	60.0	84.0	NN
80	12.0	42.0	54.0	54.0	60.0	84.0	NN
90	12.0	42.0	54.0	66.0	60.0	84.0	NN
100	66.0	96.0	72.0	66.0	60.0	84.0	NN

Source: Author's own work based on SmartPLS-NCA results

4.7 Discussion of the findings

This research aims to develop a theoretical framework for evaluating consumers' attitudes and sustainable consumption behavior by integrating the TPB and ABC theories with additional variables e.g., perceived value, ecological motives, positive and negative motives. This study proposed the relationship of attitude, subjective norms, perceived behavior control, perceived value, ecological, positive and negative motives with two dependent variables of GPB and RRCB.

Seventeen hypotheses have been proposed to test the correlation between dependent and independent variables. Findings show that fifteen hypotheses are supported in the Bangladesh context and two are rejected.

Hypothesis H1a and H1b present that attitude does not significantly affect green purchase behavior and recycling & resource conservation behavior in Bangladesh. This finding does not agree with the earlier studies (ABU-ELSAMEN ET AL., 2019). The study showed that a favorable attitude significantly affects green products and promotes sustainable consumption. Attitude strongly correlates with consumer energy-efficient purchase intention (ASLAM ET AL., 2020; ABU-ELSAMEN ET AL., 2019) and behavior in developing and developed countries. A previous study ARI & YILMAZ (2016) supported with my study result, and they found, attitude did not significantly influence recycling intentions or behaviors among homemakers in Turkey. The availability of various green items in market is limited and it is difficult for consumers to find environmentally friendly options. Bangladeshi young consumers prioritize immediate personal benefits over long-term environmental impacts; therefore, it makes difficult for green product purchases to be driven only by positive attitude. Moreover, Limited awareness, high costs, and skepticism about green claims all lead to young consumers in Bangladesh having little influence on green product purchases. Moreover, In Bangladesh, a lack of infrastructure and educational environmental-related activities impede the sustainable recycling habits and resource-saving behaviors among young consumers.

Hypotheses 2a and 2b propose that subjective norms (SN) positively and significantly affect sustainable consumption behavior. Findings show that subjective norm has a positive and significant relationship with green purchase behavior and recycling & resource conservation. This finding is in line with studies of (WARIS & AHMED, 2020; ABU-ELSAMEN ET AL., 2019; HOSSAIN, FEKETE-FARKAS & NEKMAHMUD, 2022). Previous studies show that subjective norm is a powerful predictor of consumer sustainable consumption behavior (AYAR, 2021), purchases of green products (HOSSAIN, FEKETE-FARKAS & NEKMAHMUD, 2022; NEKMAHMUD ET AL., 2022), and energy-efficient appliances (e.g., WARIS & AHMED, 2020; ABU-ELSAMEN ET AL., 2019). Moreover, subjective norms encourage consumers to purchase green products in Indonesia and Turkey (AYAR, 2021). In the resource & conservation context, KANG ET AL. (2017) found that subjective norm positively correlates with sustainable water consumption behavior in the USA and homemakers' recycling behavior in Turkey (ARI & YILMAZ, 2016). My previous study NEKMAHMUD, RAMKISSOON & FEKETE-FARKAS (2022) investigated tourists' sustainable consumption values regarding green purchases in Europe, where results show that subjective norms have significant positive relations with green purchase

intention. Scholar SUNG ET AL. (2021) also found similar results in Taiwan. The significant emphasis on familial connections in Bangladesh and the cultural predisposition to seek guidance from family members have a considerable influence on sustainable purchasing behaviors. In the Bangladeshi setting, family education plays a critical role in shaping individuals' awareness and choices, contributing to a more sustainable and ecologically sensitive attitude to consumerism.

Hypotheses 3a and 3b propose that perceived behavioral control (PBC) positively and significantly affects SCB. Previous results show that PBC has a significant association with consumer SCB of green products in Turkey (AYAR, 2021), Indonesia (ARLI ET AL., 2018), and China (WANG ET AL., 2014). Findings show that PBC has a positive and significant relationship with green purchase behavior and recycling & resource conservation Which is in line with scholars (AYAR, 2021; WANG ET AL., 2014).

In the context of energy-saving products, perceived behavioral control (PBC) has a significant influence on the purchase intention and behaviors for energy-smart household appliances in developing countries, Pakistan, Malaysia and Bangladesh (ASLAM ET AL., 2020; HOSSAIN, FEKETE-FARKAS & NEKMAHMUD, 2022)—nevertheless, WANG ET AL. (2019) found no significant relationship between PBC and consumers' purchase intention of energy-saving household appliances in China. In the resource conservation studies context, PBC significantly influences consumer sustainable water consumption behavior in the USA (KANG ET AL., 2017). The results describe that the higher level of PBC contributes to the willingness and ability of young consumers in Bangladesh to adopt sustainable consumption by addressing different barriers and contributing to environmental and societal development.

Hypotheses 4a and 4b propose that green perceived value (GPV) positively and significantly affects SCB. Results show that GPV has a positive and significant relationship with green purchase behavior and recycling & resource conservation. The result is similar to the previous studies, which validated the perceived value of green products with green purchase intention and ultimately behaviors (OGIEMWONYI, 2022; YADAV & PATHAK, 2017). For example, OGIEMWONYI (2022) found that green product value significantly influences the green purchase behavior of the Y generation in Nigeria. YADAV & PATHAK (2017) stated that consumers' perceived value plays a crucial role in their purchasing decisions. The results explain that the young generation is health conscious; therefore, they always search for product quality and health benefits and value for money. Consumers' green purchase behavior depends on product-perceived values, such as environmental value, functional value, emotional or social value, and health value (NEKMAHMUD, RAMKISSOON & FEKETE-FARKAS, 2022). Young Consumers of the developing country context like Bangladesh are more willing to purchase a product with a higher

perceived value because green products' quality and performance are higher than non-green products.

Hypothesis 5a proposes that ecological motives (EM) have a positive and significant effect on attitude. The previous studies supported the result (e.g., GAUTAM, 2020) whereas a positive correlation exists between greater knowledge and a more substantial influence on attitudes and behavior. Similarly, environmental knowledge leads to improved consumer attitudes in Bangladesh.

Hypotheses 5b, and 5c propose that ecological motives (EM)) has a positive and significant effect on SCB. Findings show that ecological motives have positive and significantly relationship with green purchase behavior and recycling & resource conservation behavior. This finding is in line with studies by (AYAR, 2021; NEKMAHMUD ET AL., 2022; WARIS & AHMED, 2020). Previous studies (e.g., LEARY ET AL., 2014) show that environmental concern is another important ecological motive influencing consumers' SCB. In the context of SCB of energy-efficient products, environmental knowledge and concern drive the promotion of energy-efficient behavior. Environmental knowledge has significantly influenced consumer SCB (SAARI ET AL., 2021; WANG ET AL., 2014). Similarly, environmental concerns significantly correlated with ecological purchase behavior (SUN ET AL., 2022; OGIEMWONYI, 2022).

In the context of recycling, CHAO ET AL. (2021) found that environmental concerns significantly and positively affect consumer recycling behavior. Therefore, it helps to reduce the negative environmental impacts and mitigate the climate change issue. Young consumers with higher environmental knowledge and climate concern tend to favor green products more and adopt resource conservation behavior. More profound environmental knowledge and climate concerns positively impact young consumer attitudes and willingness to consume' SCB (TAUFIQUE ET AL., 2017).

Hypothesis 6a proposes that positive motives (PM) have a positive and significant effect on attitude. Results show that external factors such as green marketing tools (eco-labels, eco-advertising, eco-brands), green trust, and government support of green products can positively influence consumer attitudes. The result is similar to the previous study (QIN & SONG, 2022), which stated that vital external positive factors continuously affect consumer attitude and SCB. In Bangladesh's context, eco-advertising significantly influences the young generation.

Hypotheses 6b and 6c propose that some positive motives (PM), e.g., green marketing tools, green trust, government support, and positive green words of mouth, positively and significantly affect SCB. Findings show that PM has a positive and significant relationship with green purchase

behavior and recycling & resource conservation behavior. This finding is in line with a study by my previous study (HOSSAIN, NEKMAHMUD & FEKETE-FARKAS, 2022; AYAR, 2021; WARIS & AHMED, 2020). For example, eco-label knowledge behaviors (TAUFIQUE ET AL., 2017; WARIS & AHMED, 2020), eco-advertisement (CHIN ET AL., 2018), eco-branding (CHIN ET AL., 2018) had a positive relationship with environmental attitudes and pro-environmental behavior. My previous study HOSSAIN, NEKMAHMUD & FEKETE-FARKAS (2022) examined how eco-label knowledge influences consumers' pro-environmental behavior for energy-efficient household appliances in Bangladesh. Nevertheless, a study RAHBAR & WAHID (2011) found that Malaysia's eco-label effect on the actual purchase behavior of green products was insignificant. Similarly, prior studies (HOSSAIN, NEKMAHMUD & FEKETE-FARKAS, 2022; NEKMAHMUD, RAMKISSOON & FEKETE-FARKAS, 2022) identified that green trust is the most important influencing factor for consumers purchasing green products, energy-saving products, green hotels, and recyclable products. External positive factors (e.g., green marketing tools, green trust, GWoM, and government support) significantly affect consumers' attitudes and SCB (QIN & SONG, 2022). GWoM is the most important external motivational factor to influence Y consumers in Bangladesh. Bangladeshi Y consumers obtain green product information from social media or online; if they get positive reviews of GWoM, they are interested in buying the product.

Hypothesis 7a proposes that negative motives (NM) have a negative and significant effect on attitude. Results show that NM has a significant relationship with the attitude of purchasing green products. The result is consistent with the previous study (QIN & SONG, 2022), which stated that vital external negative factors of high price and greenwashing continuously affect consumer attitudes in developed and developing countries like Bangladesh. Hypotheses 7b and 7c propose that some negative motives (NM), e.g., high price and greenwash of green products, negatively and significantly affect SCB. Findings show that NM has a negative and significant relationship with green purchase behavior and recycling & resource conservation behavior. The result is similar to the recent studies (QIN & SONG, 2022; SUN ET AL., 2022; ISSOCK ISSOCK ET AL., 2018). For example, SUN & WANG (2020) confirmed that negative motives of price consciousness negatively influence Chinese consumers' green purchase intentions—similarly, SUN ET AL. (2022) claimed that perceived cost and price sensitivity negatively influence consumer green purchase intentions and behavior. Another study ISSOCK ISSOCK ET AL. (2018) stated that the price of green products negatively impacts consumer purchases of home appliances in South Africa, and green price sensitivity strongly influences Generation Y green behavior in Nigeria (OGIEMWONYI, 2022). So, the negative motive of price sensitivity becomes a major barrier for Y consumers' SCB in Bangladesh unless promotions or discounts are offered.

Another negative motive of green greenwashing has significantly and negatively inference Young consumer SCB of green purchase behavior and recycling & resources conservation behavior, which agreed with the previous studies (e.g., GOH & BALAJI, 2016; ZHANG ET AL., 2018). They found that the perception of greenwashing in China negatively and directly impacts green purchasing intentions and indirectly impacts the green WOM of companies. Similarly, GOH & BALAJI (2016) found that green skepticism has a direct negative influence on green purchase behavior and indirectly through environmental concern as well as environmental knowledge. Greenwashing negatively impacts firms' reputations and financial performance (LEONIDOU ET AL., 2013) and affects the interests of consumers, investors, regulators, environmental protection departments, and society. Moreover, future purchase behavior is negatively affected by greenwashing in Bangladesh. Therefore, greenwashing can be the main barrier to adopting the Y consumers' SCB in Bangladesh.

V. CONCLUSION AND RECOMMENDATIONS

5.1 Conclusions

Recently, scholars have been interested in researching pro-environmental behavior, sustainable consumption behavior, and environmental marketing with climate change issues. Scholars believe that consumers' pro-environmental and sustainable consumption behavior supports climate change mitigation. Therefore, this study makes a valuable contribution to the field of environmental marketing and consumer behavior science by exploring how various influencing factors intersect with sustainable consumption behavior and help mitigate climate change. This study offers researchers a new conceptual framework for understanding consumers' sustainable consumption behavior by integrating the TPB and ABC theories with additional variables (perceived value, ecological motives, and positive and negative motives). This is the first empirical investigation that reveals the role of a complex set of missing constructs in sustainable consumption behavior and measures together green purchase behavior and recycling & resource conservation behavior, which support climate change mitigation. It means the proposed integrated model facilitates assessing the same consumer engagement in sustainable practices across various domains, including green purchase behavior, organic food acquisition patterns, energy conservation initiatives, and eco-friendly transportation choices. The proposed integrated model, thus, demonstrates its efficacy in quantifying consumer purchasing patterns and sustainable consumption behaviors across diverse categories of environmentally friendly products.

Moreover, this research has attempted to observe how internal and external contextual motives influence consumers' sustainable consumption behavior. The path results identify that attitude,

subjective norms, perceived behavior control, perceived value, climate concern, environmental knowledge, green marketing tools, green trust, government support, and green word of mouth are key influential internal and external factors that have strong and positive effects on young consumers' sustainable consumption behavior in Bangladesh.

Findings also show that green perceived value is the most crucial factor influencing green purchase behavior of young consumers in Bangladesh compared to recycling and resource conservation behavior. Marketers ensure green perceived value for young consumers by offering health & environmental benefits of their products that support mitigating climate issues.

Environmental knowledge and climate concerns are the primary external factors that influence young consumer attitudes and recycling & resource conservation behavior in Bangladesh. Moreover, ecological knowledge strongly influences young consumers of Bangladesh to adopt recycling and resource conservation compared to green purchase behavior. The results explain that Young consumers of Bangladesh with a heightened awareness of the environment and concerns about climate change are inclined to show a greater preference for green products and engage in pro-environmental behaviors contributing to resource conservation. A deeper understanding of environmental concerns positively influences change in young consumers' attitudes and encourages them to adopt sustainable consumption practices.

The noble results of this study show that the external context of positive motives, such as green marketing tools (eco-labels, eco-advertising, eco-brands), green trust, and government support of green products, can positively and significantly influence consumer attitudes and sustainable consumption behavior of green products, and recycling & resource conservation behavior in Bangladesh. Specifically, eco-advertising or green advertising emerges as a major influential determinant of green marketing tools in Bangladesh. Green advertising has a positive impact on young consumers' minds. It influences people to purchase eco-friendly products and encourages them to adopt sustainable consumption, whether seen on social media, YouTube, or TV. Green advertising should focus on the environmental benefits of green products and encourage a sustainable lifestyle. Telling exciting stories about sustainable practices, eco-friendly products, and the positive impact of pro-environmental and sustainable consumption behavior helps demonstrate the brand's commitment to environmental values.

Green trust also plays a pivotal role in fostering the adoption of sustainable consumption behavior among young consumers in Bangladesh. On the other hand, some negative motives, e.g., high prices and greenwashing of green products, negatively and significantly affect attitude and sustainable consumption in Bangladesh, which demotivates young consumers. Notably, the

perceived high price of green products is the main hindrance to affording the green development among the young consumers in Bangladesh. Young consumers believe that the accessibility of greenwashing has contributed to their unwillingness to acquire environmentally friendly products, decreasing their trust in the validity of environmentally friendly promises made by specific products or companies. Young consumers in Bangladesh consider the government's endorsement and implementation of environmentally friendly policies as motivating factors for engaging in sustainable consumption. They believe that the government should actively encourage the younger generation to adopt practices such as recycling and resource conservation in order to contribute to mitigating climate change.

The results of the importance-performance map analysis highlight that internal and external motivational constructs, attitude, ecological motives, and green perceived value are the most important factors in defining green purchase behavior and recycling & resource conservation behavior of young Bangladeshi consumers. Necessary condition analysis also supported that green perceived value, positive motives, and ecological motives are large effects of sustainable consumption behavior in Bangladesh, which are the necessary conditions for GPB and RRCB, with statistical significance and accuracy of over 90%. Therefore, marketers in Bangladesh should focus on green perceived value, ecological motives, and positive motives, mainly green trust, eco-advertising, and government support, compared to other influential factors.

Results show that ecological motives moderate the significant positive relationship between AT & GPB, PBC & GPB, and SN & RRCB in Bangladesh. Young consumers with higher environmental knowledge and climate concerns positively impact young consumer attitudes and perceived behavior control with green purchase behavior. If Bangladeshi consumers have profound ecological knowledge, it also supports them to adopt conservation behavior. The survey results show the consumer sustainable consumption habits in Bangladesh. According to their responses, almost 42% of young respondents sometimes buy organic food, and 43% of young consumers repurchase energy-saving household appliances. 28% of respondents said they carry their own bags when shopping. Results also show that 57% of young respondents said to turn off the tap when soaping up/cleaning teeth/ washing dishes, and 67% turn lights off in unused rooms. Only 13% of respondents use recyclable and reusable products, and 43% sometimes use recyclable and reusable products. These results show that young consumers of Bangladesh are more interested in adopting sustainable consumption behavior. Bangladesh's companies, marketing managers, and policymakers should focus more on ensuring sustainable production and consumption.

According to respondents, 65% of young respondents of Bangladesh believe that studying environmental-related modules/lessons is always helping them change their behavior/attitude

toward environmental protection. Therefore, it needs to emphasize consumer education on greening, sustainability, and ecology. Environmental and climate change education must be included into school, college, and undergraduate curriculum, as well as training programs for businesses and individuals. These programs increase knowledge about and encourage adoption of sustainable practices in Bangladesh.

This research contributes theoretically and practically to developing sustainable consumption of green products and recycling & resource conservation behavior for society in a developing country context. This study provides opportunities for practitioners and researchers to delve into the rapidly extending areas of environmental marketing and sustainable consumption, ultimately mitigating climate change issues. The combined approach of SEM and NCA validates the proposed framework. As a result, this research model can measure various aspects of the same consumer purchase behavior, including organic food, green products, energy-efficient products, recycling, resource conservation behavior, and green transportation, all within a unified framework.

5.2 Implications

This study provides theoretical, managerial, and policy insights for researchers, marketing managers, marketers, and policymakers based on the dimension of social, psychological, environmental, marketing, and behavioral sciences.

5.2.1 Theoretical implication

This study makes a significant theoretical contribution to the pro-environmental and sustainable consumption behavior context by addressing the limitations of the existing theories. Remarkably, this study improves predictive power by incorporating additional factors into a combined model, which overcomes the limitations of the theory of planned behavior (TPB), which primarily focuses on behavioral intentions. TPB has been widely applied in environmental and various research fields. Scholars KOTLER & ARMSTRONG (2018) criticized the TPB is self-interest nature and failure to complete behavior due to its rational predictor constructions adequately. Moreover, TPB failed to establish the causal relationship between external and internal factors of sustainable consumption behavior. Therefore, the attitude-behavior-context (ABC) model is the most appropriate for integrating with the TPB. To overcome these limitations, I introduce an extended model incorporating TPB and ABC to measure the effectiveness of consumers' attitudes and sustainable consumption behavior.

Moreover, this proposed model offers valuable insights into addressing the attitude-behavior gap, a prominent issue in pro-environmental behavior in climate change mitigation research. In the environmental marketing and pro-environmental behavior context, some missing constructs have

remained uninvestigated in the previous theoretical and conceptual model, and those also influence consumers' attitudes and sustainable consumption behavior. For example, key environmental-related variables such as green trust, government support, green marketing tools, positive green WoM, high price sensitivity, greenwashing concern, climate concern, and environmental knowledge are incorporated in our model, which enhanced the complete understanding of sustainable consumption behavior. This study introduces climate concern and environmental knowledge combined to shape the formative construct known as ecological motives. Meanwhile, green marketing tools, green trust, government support, and positive green word-of-mouth contribute to the formative construct of positive motives, and high price sensitivity and greenwashing concerns are integrated into the formative construct of negative motives. These formative constructs of ecological motives, positive motives, and negative motives combined together in the same model, which is another theoretical and noble contribution for the first time in environmental marketing areas. These integrations contribute to gaining a comprehensive understanding of consumers' purchasing patterns for environmentally friendly products.

This is the first empirical investigation that reveals the role of a complex set of missing constructs in sustainable consumption in the marketing context and measures pro-environmental and sustainable consumption behavior that supports climate change mitigation. Previous research has overlooked these contextual factors in shaping green consumer behavior. This integrated approach allows for exploring the mechanisms behind sustainable consumption behavior, considering both internal and external factors, which are the noble theoretical contributions in the pro-environmental context. This research introduces a comprehensive framework that expands our understanding of green purchase behavior and recycling & resource conservation behavior. This proposed model can help to measure customers' sustainable consumption behavior across multiple sectors in the same model. Moreover, most scholars measure consumer green purchase behavior and recycling & resource conservation behavior as sustainable consumption behavior separately, which need to be investigated together in the same model. The combined approach of SEM and NCA validates the proposed framework. As a result, this research model is capable of measuring various aspects of the same consumer purchase behavior, including organic food, green products, energy-efficient products, recycling, and resource conservation behavior, as well as green transportation, all within a unified framework. This significant advancement model represents a novel theoretical contribution to the marketing field.

5.2.2 Managerial Implication

Findings of this study contribute valuable practical implications for marketing managers and marketers, enhancing their understanding of consumer pro-environmental behavior and

sustainable consumption behavior, which contribute to mitigating climate change issues. This study highlights key managerial implications that help marketers of developing and developed countries formulate effective marketing strategies for increasing sustainable consumption behavior. Based on the study's findings, it is crucial for marketers to proactively provide consumers with informative and relevant details on how they can embrace eco-friendly products from nature. This study shows that green marketing tools significantly influence consumers' sustainable consumption behavior. Therefore, companies and marketers should initiate targeted campaigns aimed at raising awareness about green products, and utilizing green marketing tools, such as green branding, green advertising, and ecolabels, can be instrumental in achieving this objective. In Bangladesh, green advertising is the most effective marketing tool for the young generation. Green advertising or promoting eco-friendly products has a positive impact on consumers' minds, whether they are seen in print media or on TV. These green advertisements influence people to purchase eco-friendly products (DANGELICO & VOCALELLI, 2017). The young generation in Bangladesh strongly prefers social media platforms, making these channels an effective medium for engaging with them. As a result, marketers and advertisers should consider creating "green advertising" campaigns tailored to social media. Green advertising campaigns should contain educational information about the environment & climate change, informative posts, articles, and videos to raise awareness and inspire young consumers to adopt pro-environmental and sustainable consumption behavior.

The study findings show that green trust significantly influences sustainable consumption behavior of young consumer in Bangladesh. Therefore, Green marketing promises should be transparent, and firms should show evidence of their commitment to sustainability. Authenticity in green messages aids in the development of consumer trust. Research has shown skepticism among consumers, particularly regarding green product advertising on social media (LUO ET AL., 2020). This skepticism is often fueled by misleading or exaggerated claims in advertising, a concern especially prevalent among environmentally conscious consumers. Therefore, marketers and managers need to address and minimize this skepticism at the managerial level. They can achieve this by providing genuine and accurate information about their green products, emphasizing transparency, and building consumer trust. By doing so, they can establish a more credible image and foster greater consumer trust and confidence regarding their green initiatives. Marketers and managers should establish a credible platform that allows consumers to engage and interact to enhance trust in advertising. The negative motive of greenwashing is also a key factor discouraging purchasing green products in Bangladesh. It should prioritize transparency in order to effectively combat greenwashing by giving extensive and reliable information on the ecological attributes of its products. It's also a good idea to look for third-party certifications or labels from recognized

environmental organizations, which adds credibility and assures adherence to true sustainability standards.

Results show that high price is the main barrier to purchasing green product in Bangladesh. Companies should consider implementing strategies such as cost-effective production methods, promoting the long-term value of green products to consumers, developing partnerships with sustainable suppliers, and leveraging marketing campaigns to emphasize affordability and benefits over time. Investing in research and development for sustainable practices, as well as collaborating with government initiatives, can also contribute to reducing cost and market competitiveness. This study shows that green word of mouth (GVoM) is the most powerful factor influencing pro-environmental behavior in Bangladesh. Marketers should actively engage in social media platforms and encourage user-generated content, such as testimonials and reviews, and fostering online communities centered around sustainable practices can amplify positive experiences with green purchase behavior and sustainable lifestyle.

Consumers with environmental knowledge are more interested in purchasing green products and adopting recycling and resource conservation behavior. Study results show that ecological motives significantly influence young consumers' sustainable consumption behavior in Bangladesh. Marketers increase ecological concerns and environmental knowledge for consumers in Bangladesh by integrating sustainability information into product labeling, targeted educational campaigns, emphasizing the local relevance of sustainable practices, and highlighting the positive impact of eco-friendly choices, which can contribute to raising awareness and fostering a culture of environmental responsibility among consumers. The young generation of Bangladesh constantly searches for the perceived value of products. Marketers can ensure perceived value and green perceived value for consumers by effectively communicating product benefits & environmental benefits of their products, using eco-friendly packaging and materials, obtaining reputable certifications to validate sustainability claims, incorporating features aligned with consumer values, and consistently delivering on promises that further contribute to building a positive and enduring green perceived value. Marketers should create clear and transparent communication emphasizing the environmentally beneficial characteristics of green products, illustrating how these items contribute to a more sustainable and healthier environment. Companies can demonstrate their strong commitment and support for the environment by running effective and well-designed campaigns that contribute to a positive shift in consumer resource conservation and more sustainable environmental attitudes and behaviors. Companies can effectively bridge the gap between consumer awareness of eco-friendly products and their actual purchase behavior by employing these environmental marketing strategies.

5.2.3 Policy implication

Findings of the study will help policymakers improve consumer pro-environmental and sustainable consumption behavior, which supports achieving the SDGs12. To contribute to a more sustainable and climate-resilient society, the government of Bangladesh can implement environmental policies, public awareness campaigns, and green certification programs, encourage green businesses, promote circular economy practices, integrate ecological education, and foster international collaboration.

Policymakers should emphasize the advantages of switching from non-green to green products, highlighting individual and environmental benefits. Policymakers of Bangladesh should promote consumer learning and education on green products and environmental issues. Therefore, it is crucial to incorporate environmental and climate change education into school, college, and undergraduate curricula and provide training programs for enterprises and individuals to improve understanding and implementation of sustainable practices in Bangladesh.

Result of this study shows that high price is the main barrier to purchasing green products in Bangladesh. Thus, policymakers can address high-price issues for green products in Bangladesh by taking a multifaceted strategy. Firstly, the government can play a pivotal role by offering subsidies and financial incentives to both manufacturers and consumers. This may include tax reduction, reduced import tariffs, or direct financial support for organic food and energy-efficient products. The government needs to encourage farmers and local production of organic food and green products.

Moreover, awareness and education campaigns are crucial to shifting perceptions about the affordability of green products, emphasizing their long-term benefits and cost savings. Collaboration with businesses is essential for implementing sustainable practices that reduce production costs, while partnerships with NGOs and international organizations can provide funding and expertise. The government should provide financial support for small businesses focusing on green products through grants or low-interest loans, which can stimulate entrepreneurship in the sustainable goods sector in Bangladesh. The Bangladesh government should promote circular economy practices, such as recycling and upcycling, which can reduce raw material costs and minimize waste. At the same time, the government should seek international collaboration and aid for sustainable development initiatives, including financial assistance, technology transfer, knowledge sharing, and enhancing the capacity to produce affordable green products. Supportive policies and regulations should be established to allow businesses to justify their green claims, promoting trust and lowering unfavorable perceptions of green products. Communication channels sponsored by government, health, or environmental organizations can

promote eco-friendly products and encourage customers to make informed decisions. Continuous knowledge about eco-friendly items can motivate consumers to acquire green products, enabling them to switch from conventional food products. Given the growing demand for food security and environmental protection, policymakers and producers in Bangladesh must work together to guide consumption and output towards sustainability. Raising public knowledge and supporting green consumerism will boost green purchasing behavior. This empirical study offers significant information for marketers and producers, assisting in understanding consumer perceptions and needs for safer, healthier product development. Collaboration among farmers, manufacturers, retailers, and government agencies is critical for achieving sustainable production and environmental conservation, harmonizing with key Sustainable Development Goals (SDGs), and minimizing environmental pollution.

Finally, Bangladesh government should invest in research and development to foster innovation in sustainable technologies and reduce the environmental footprint of products and services. Collaboration with international organizations and participation in global projects to share knowledge, resources, and best practices for sustainable consumption can achieve pro-environmental and sustainable consumption behavior, ultimately reducing climate change issues and ensuring quality of life.

VI. NEW SCIENTIFIC RESULTS

This research contributes new scientific results in the field of environmental marketing and consumer psychology based on the research outcomes and discussion. These findings can be used as a framework for future research, with theoretical and managerial consequences.

1. The novel theoretical contribution of this study is to integrate the theory of planned behavior and attitude-behavior-context model with additional variables, e.g., ecological motive, positive motives, and negative motives, to explain pro-environmental and sustainable consumption behavior. As mentioned earlier, several scholars have raised concerns about the adequacy of the theory of planned behavior in fully understanding consumer behavior. They suggest that the theory might need additional variables to examine consumer behavior comprehensively. Thus, this study proposed a new conceptual framework integrating TPB and ABC theories while adding some missing factors influencing consumer sustainable consumption behavior. The validity of the final model needs to be confirmed using the various analytical methods employed in this study. Hence, this study proposed a successful new TPB-ABC theory that broadly measures consumers' sustainable consumption behavior.

2. This study first developed an integrated model that measures the same consumer sustainable consumption behavior of green purchase behavior and resource conservation behavior in the single model. This is a noble contribution to environmental marketing and environmental psychology literature. Moreover, to the best of my knowledge, this study is the first empirical research that measures consumer sustainable consumption behavior in the developing country of Bangladesh.
3. This study has validated the proposed conceptual framework using the combined approaches of the structural equation model (SEM) and the Necessity condition analysis (NCA) as noble methodological contributions in the marketing and consumer psychology area. This study has investigated the relationship between internal and external influential constructs of consumers' sustainable consumption behavior. The combined approach of SEM and NCA validates the proposed framework. As a result, this research model can measure various aspects of the same consumer purchase behavior, including organic food, green products, energy-efficient products, recycling, resource conservation behavior, and green transportation, all within a unified framework.
4. The new scientific results drawn from this research involve the incorporation of the additional external contextual variables—namely, Ecological motives encompassing environmental knowledge and climate concern, Positive motives including green marketing tools, green trust, government support, and GWoM, as well as Negative motives such as high price sensitivity and greenwashing concern—treated as formative constructs for the first time in this study. Extending the model with these variables provides valuable information for understanding consumers' decisions about purchasing green products and recycling & resource conservation behavior. In Bangladesh, the noble results of the IPMA map show that climate concern (77.31) is the most crucial ecological motive in defining young consumers' SCB. Green marketing tools (71.34) and green trust (71.29) are the most important positive motives defining consumers' SCB. Negative motives, particularly high price sensitivity (35.53), have low importance in influencing SCB and serve as the most significant barrier defining young consumer discourse towards purchasing green products.
5. According to my knowledge, it is the first that ecological motive is considered as moderate effects on the interaction between constructs of the TPB model. The PLS results show that ecological motives moderate the strong and significant relationship between green perceived

value and green purchase behavior (0.168). The results also show that ecological motives moderate the crucial positive relationship between attitude & green purchase behavior (0.088) and perceived behavior control, & green purchase behavior (0.097) in Bangladesh. The findings describe that a deep understanding of ecological matters positively impacts attitudes, perceived behavior control, and green perceived value among young consumers, ultimately influencing their green purchase behavior. These results provide valuable insights for marketers and policymakers, emphasizing the significance of ecological motives, encompassing environmental knowledge and climate concerns. These outcomes are helpful for policymakers and marketers to work more effectively on emphasizing consumer education on greening, sustainability, and ecology and provide ecological-related information about their products.

VII. SUMMARY

Sustainable consumption behavior has gained significant importance in the consumer market and research in recent decades due to rising global environmental challenges, e.g., pollution, global warming, and climate change. Addressing these environmental challenges requires a shift in human behavior towards more environmentally sustainable practices. Scientists and scholars suggest companies need to ensure sustainable production and consumption to protect the environment, which is merged with the Sustainable Development Goals (SDGs-12). Most scientists and researchers believe that increasing consumer engagement in pro-environmental behavior and sustainable consumption behavior reduces negative ecological impacts and ensures the quality of life on Earth. To address environmental concerns effectively, it is crucial to understand how consumers engage in pro-environmental, sustainable, and eco-friendly behavior to help combat climate change. Therefore, the study aims to identify the key influential factors, influence path, and decision-making mechanisms that significantly impact Young consumers' attitudes and sustainable consumption behavior. This study proposes a new conceptual framework based on the theory of planned behavior (TPB) and the Attitude-behavior-context (ABC) model for measuring consumers' actual sustainable consumption behavior with additional internal and external contextual variables, namely perceived value, ecological motives, and positive and negative motives. Further, this study also analyzes the mediating-moderating effect on sustainable consumption behavior. A total of 1344 usable responses were obtained through a structured questionnaire in Bangladesh. PLS-SEM (structural equations model) and the newly developed advanced analysis technique Necessary Condition Analysis (NCA) were applied to test the model and hypotheses. Results show that subjective norms, perceived behavior control, and perceived

value have a positive and significant relationship with green purchase behavior and recycling & resource conservation. The noble results of this study are that ecological motives (environmental knowledge and climate concern) have a positive and significant relationship with consumers' attitudes, green purchase behavior, and recycling & resource conservation behavior. Other notable results show that the external context of positive motives, such as green marketing tools (eco-labels, eco-advertising, eco-brands), and green trust, can positively influence consumer attitudes and sustainable consumption behavior. Findings also show that green perceived value is the most important factor for influencing green purchase behavior in young consumers of Bangladesh. Environmental knowledge and climate concerns are the major external factors that influence young consumer attitudes and recycling & resource conservation behavior in Bangladesh. Findings also show that negative motives, particularly high price sensitivity, have a highly negative and significant relationship with attitude, green purchase behavior, and recycling & resource conservation behavior. Ecological motives moderate the significant positive relationship between AT & GPB, GPV & GPB, and PBC & GPB. To my knowledge, this is the first empirical investigation that reveals the role of a complex set of missing constructs in SCB and measures together green purchase behavior and recycling & resource conservation behavior, which support climate change mitigation. The study has made novel theoretical contributions to marketing and consumer behavior literature by introducing a new conceptual framework to which further scholars can apply to different product sectors in both developing and developed country contexts. Moreover, Findings of this study contribute valuable practical and policy implications for marketing managers, marketers, and policymakers for formulating effective marketing strategies and enhancing their understanding of consumer pro-environmental and sustainable consumption behavior, which contributes to mitigating climate change issues.

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20. **Nekmahmud, M.** (2020). Consumer Purchase Behavior towards Eco-friendly and Energy-efficient Household Products: An Empirical Analysis", *2nd International Conference on Entrepreneurship, Management, Innovation, and development -2020 in London, 20th December March, London, UK*. Organized by the University of Sunderland in London (Online Poster).