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Impact of Environmental Responsibility and Environmental Knowledge on Green Consumption Intention: A Mediated-Moderation Analysis

by

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This thesis is dedicated to my family.

CERTIFICATE OF APPROVAL

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(Shiza Sikandar)

Abstract

This study was aimed at examining the impact of environmental responsibility and environmental knowledge on green consumption intention with the mediating role of environmental concern and the moderating role of green product availability in the relationship between environmental concern and green consumption intention. The current studies on the factors influencing green consumption have greatly advanced in the past few years. However, limited efforts have been undertaken to examine the influence of consumer's environmental responsibility and environmental knowledge on green consumption intention and the manner in which this relationship is explained through the lens of environmental concern and green product availability especially when the consumers are becoming more environmentally aware and are depicting an increased willingness to buy green products.

For this purpose, a questionnaire method was used to obtain data from 328 Pakistani consumers of green cosmetic and personal care products. A PLS-SEM technique was applied to assess the validity of the research hypotheses. The results indicate that environmental responsibility has a positive effect on environmental concern and green consumption intention. Environmental knowledge does not have any significant impact on green consumption intention. However, environmental knowledge has a positive effect on environmental concern and environmental concerns mediates the relationship between environmental responsibility, environmental knowledge and green consumption intention. Moreover, it was observed that green product availability does not moderate the relationship between environmental concern and green consumption intention. The theoretical and managerial implications along with limitations and future research directions have also been discussed.

Keywords: Environmental Responsibility, Environmental Knowledge, Environmental Concern, Green Consumption Intention, Green Product Availability.

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List of Abbreviations

AVE	Average Variance Extracted
CER	Corporate Environmental Responsibility
CR	Composite Reliability
EC	Environmental Concern
EK	Environmental Knowledge
ER	Environmental Responsibility
GCI	Green Consumption Intention
GPA	Green Product Availability
NEP	New Ecological Paradigm Scale
PEBs	Pro-Environmental Behaviors
PLS	Partial Least Squares
STDEV	Standard Deviation
TBP	Theory of Planned Behavior
VBN	Value-Belief-Norm Theory

Chapter 1

Introduction

1.1 Background of the Study

The contemporary issues faced by the world at present such as energy crisis, climatic change, and the rapid surge in environmental pollution have garnered increased public attention regarding environmental issues (Skogen et al., 2018). The exponential economic growth in the developing countries has led to an excessive depletion of natural resources which has resulted in an increase in environmental degradation (Li et al., 2019; Ramayah et al., 2010). Excessive consumption of products across the globe has put a huge burden on the existing natural resources and the environment (Goncalves et al., 2016; Urban et al., 2019). As a result, many countries around the world have started to undertake efforts with regards to the mitigation of environmental degradation caused by business activities (Nguyen et al., 2019; Sheng et al., 2019).

This increased concern has led to the conceptualization of the term "environmental sustainability" (Ogiemwonyi & Harun, 2019). Various businesses and organizations are now inculcating sustainable practices into their business models with a special focus on the environmental domains in their marketing endeavors (Kautish et al., 2019). One of the major facets of environmental sustainability is the concept of green consumption (Awuni et al., 2016). Green consumption has been termed as a consumption behavior that encompasses a certain degree of

individual responsibility towards the environment and nature and it has grabbed the attention of many consumers' (Chen et al., 2018). The purchase and consumption of green eco-friendly products has been labelled as an effective strategy to curb the adverse effects of environmental degradation (Alam et al., 2019). Environmental responsibility and environmental knowledge have become an area of interest for the academicians and the organizations with regards to its influence on the consumer's buying intentions and behavior (Slavolijub et al., 2015). Many studies have posited a positive association between increased environmental knowledge, and green consumption (Wu & Yang, 2018). Environmentally responsible consumption behavior is essential because unplanned buying and consumption of goods and services can have serious repercussions for the environment (White & Simpson, 2013).

In a study by (Newton et al., 2015) it was reported that the household purchases by the consumer accounted for 40% of the total environmental damage. The consumers therefore, possess the capacity to mitigate this damage by being environmentally responsible through engaging in green product consumption behavior (Al Mamun et al., 2018). The adoption of green products can play a significant role in mitigating the environmental impact (Malik et al., 2017). Prior studies point towards the fact that consumers tend to exhibit a constructive attitude towards the protection of their surrounding environment (Ting & Cheng, 2017). With the increase in consumer awareness and knowledge regarding the environment, the preferences of the consumers towards different products have changed (Zheng & Chi, 2015). In fact, many studies have established that the consumers have conveyed their desire to buy green products (Sreen et al., 2018). Consumers are now more driven towards those products that exhibit more eco-friendly features (Ogiemwonyi & Harun, 2019).

Researchers have examined this relationship through the lens of the Theory of Planned Behavior (TBP) which posits that behavior is determined by intentions that are in turn influenced by an individual's attitude and subjective norms (Wu & Chen, 2014). As a result, the businesses and marketers are now repositioning their marketing strategies to cater to the increasing environmental concerns that

have evolved due to the development of pro-environmental consumer attitudes (Zheng & Chi, 2015). But, despite the increase in the level of environmental responsibility and the demand for green products (Ting & Cheng, 2017). This is because the global market share of green products is still restricted to 1-3% of the entire market (Barbarossa & Pastore, 2015). Therefore, it has become imperative for the researchers and marketers to identify the factors that drive the consumers towards the buying and consumption of green products.

Moreover, the availability of green products and the development of consumption intention can be an effective solution that can aid in mitigating the problem of resource exploitation caused due to an unprecedented increase in the global population and economic growth especially in the developing countries located in the Asian continent (Ramayah et al., 2010). Many studies have been undertaken in the context of developing Asian nations with regards to the determination of major antecedents of green consumption intention (Genoveva & Syahrivar, 2020). These countries include India (Chaudhry & Bisai, 2018), Malaysia (Suki, 2016), Taiwan (Yu et al., 2017), and China (Yue et al., 2020). For instance, Suki (2016) in his study on Malaysian consumers observed that increased environmental awareness and pro-environmental values were the major precursors behind the development of green consumption intention. On the contrary, limited inquires have been initiated in the Pakistani context and very scarce literature exists with regards to the association between environmental responsibility and green consumption behavior (Ali et al., 2019). By determining whether environmental responsibility, environmental concern, and green product availability drive the Pakistani consumers to develop green consumption intentions, the present study can significantly aid the organizations and marketers to gain a deeper understanding of the antecedents and precursors that lead towards the development of green consumption intention.

1.2 Gap Analysis

Environmental concern has been established as a key factor that influences green consumption (Ting & Cheng, 2017). There is limited literature that exists with

regards to exploring the degree of association between environmental concern and green consumption intention (Yue et al., 2020). It still remains to be seen whether the relationship between these constructs is influenced through other constructs (Ogiemwonyi & Harun, 2019).

The current literature on the influence of environmental knowledge on the willingness to adopt and consume green products is scarce and begs further inquiry. Many studies have focused on examining the direct influence of environmental knowledge on green purchase intention but the indirect influence of environmental knowledge on green consumption has been ignored (Li et al., 2019).

The existing studies have mainly catered to the to the issue of environmental responsibility, environmental knowledge, and green consumption from the organizational perspective only. Researchers have observed the influence of corporate environmental responsibility (CER) on green consumption behavior whereas, limited inquires have been initiated from the perspective of the consumer (Suganthi, 2019).

Furthermore, researchers have noted an increased inclination of the consumers in the developing nations towards the adoption and consumption of green products (Hameed et al., 2019). For instance, in countries like Malaysia, the consumers tend to exhibit pro-environmental behavior by engaging in green product buying behavior. On the other hand, in countries like Pakistan there seems to be a dearth of knowledge with regards to environmentalism that need to be fulfilled (Hameed et al., 2019).

Yue et al. (2020) in their study on Chinese consumers examined the relationship between environmental responsibility and green consumption intention through the mediating and moderating mechanisms of environmental concern and price sensitivity respectively. The authors suggested further replication of the study by introducing a new moderating mechanism such as green product availability. Therefore, the present study intends to bridge this gap by proposing a mediated-moderation model to determine the moderating role of green product availability in the relationship between environmental responsibility, environmental knowledge, environmental concern, and green consumption intentions.

1.3 Problem Statement

Environmental responsibility and environmental concern have been regarded as the major antecedents of green consumption intention (Yue et al., 2020). The unprecedented pace of environmental degradation and the increase in environmental knowledge has led to growing calls for the adoption of green and sustainable consumption behavior (Ting & Cheng, 2017). The current studies have mainly focused on exploring to the impact of corporate environmental responsibility on the development pro-environmental attitudes and behavior (Su et al., 2017; Chuang & Huang, 2018). There is a dearth of knowledge that exists with regards to the manner in which consumer environmental responsibility affects green consumption intention (Suganthi, 2019). In the domain of environmental behavior, environmental responsibility is an important construct that influences the consumers to develop and engage in pro-environmental behavior (Zheng & Chi, 2015).

Environmental responsibility drives the consumers to exhibit concern regarding environmental issues and thus motivates them to undertake efforts to safeguard their surrounding environment by developing pro-environmental attitudes and green consumption values (Barbarossa & Pastore, 2015). Therefore, the present study intends to develop a theoretical framework through the lens of the theory of planned behavior (TPB) in order to gain a deeper understanding regarding whether environmental responsibility, environmental knowledge, environmental concern and green product availability act as major precursors of green consumption intentions.

1.4 Research Questions

The current study intends to seek answers to the following questions:

- How does environmental responsibility affect green consumption intention?

- What is the impact of environmental responsibility on environmental concern?

- How does environmental knowledge affect green consumption intention?

- How does environmental knowledge affect environmental concern?

- How does environmental concern affect green consumption intention?

- Does environmental concern play a mediating role in the relationship between environmental responsibility and green consumption intention?

- Does environmental concern play a mediating role in the relationship between environmental knowledge and green consumption intention?

- Does green product availability play a moderating role in the relationship between environmental concern and green consumption intention?

1.5 Research Objectives

The present study aims to accomplish the following research objectives:

- To investigate the relationship between environmental responsibility and green consumption intention.

- To determine the extent of relationship between environmental responsibility and environmental concern.

- To assess the relationship between environmental knowledge and green consumption intention.

- To determine the relationship between environmental knowledge and environmental concern.

- To examine the relationship between environmental concern and green consumption intention.

- To determine whether environmental concern mediates the relationship between environmental responsibility and green consumption intention.

- To assess whether environmental concern mediates the relationship between environmental knowledge and green consumption intention.

- To investigate the moderating role of green product availability in the relationship between environmental concern and green consumption intention.

1.6   Significance of the Study

The current study encompasses some key theoretical and managerial implications. This study intends to make some key and valuable contributions to the existing body of literature that is available on the subject. This study aims to extend the current body of knowledge in two ways.

Firstly, this study will broaden the existing literature on the association between environmental responsibility and green consumption from the perspective of the consumers. The current literature mostly sheds lights on this relationship only from the organizational perspective. Moreover, the studies on environmental responsibility and green consumption intention in the Pakistani context are still scarce and beg further inquiry. Hence, the current study will strengthen the knowledge and understanding with regards to antecedents that influence green consumption intentions of Pakistani consumers.

Secondly, the current study will extend the current literature by examining the moderating role of green product availability in the in the relationship between environmental responsibility, environmental concern, and green consumption intention. Moreover, the current study intends to build on the fact that environmental responsibility and environmental concern will stimulate the consumers to develop green consumption intentions given that the green products are readily and conveniently available.

As far as the managerial implications are concerned, the present study aims to provide empirical evidence to the policy makers regarding the association between environmental responsibility, environmental concern and green consumption intention. On the basis of staunch empirical evidence, the policy makers can undertake radical measures aimed at educating the masses regarding the importance of developing pro-environmental behaviors in order to protect the surrounding environment. The findings of the present study will also provide evidence to the

managers on the basis of which they can develop green strategies aimed at the development of green consumption intentions.

1.7 Operational Definitions of the Key Terms

1.7.1 Environmental Responsibility

Environmental Responsibility encompasses a sense of deeper responsibility that stimulates the individuals to exhibit increased attention towards key environmental issues, and motivates them to undertake efforts that are aimed at taking responsibility for the protection of their surrounding environment as well as promoting the practice of engaging in pro-environmental behaviors.

1.7.2 Environmental Knowledge

Environmental knowledge refers to the awareness and knowledge possessed by an individual regarding environmental issues and their possible solutions. It includes the awareness regarding the effect of individual actions on the surrounding environment.

1.7.3 Environmental Concern

Environmental Concern can be regarded as the views and opinions of an individual regarding various environmental issues and the attitudes that emerge as a result of interaction between the individuals and the environment.

1.7.4 Green Consumption Intention

Green Consumption Intention can be termed as a consumption behavior which encompasses the efforts to mitigate the adverse effects of consumption on the environment during the process buying, using and disposal especially with regards to the buying of eco-friendly products.

1.7.5 Green Product Availability

Green Product Availability mainly refers to the availability of such products that possess certain eco-friendly and sustainable features (Zakowska-Biemans, 2011).

Chapter 2

Literature Review

2.1 Environmental Responsibility

Environmental Responsibility (ER) encompasses a sense of deeper responsibility that stimulates the individuals to exhibit increased attention towards key environmental issues, and motivates them to undertake efforts that are aimed at taking responsibility for the protection of their surrounding environment as well as promoting the practice of engaging in pro-environmental behaviors (Stone et al., 1995). Slavoljub et al. (2015) refer to environmental responsibility as the actions of the individuals that are taken under the context of societal-environmental wellbeing and regardless of any other personal or economic interests.

Han et al. (2017) described environmental responsibility (ER) as a form of personal responsibility that induces an individual to engage in a particular behavior that is aimed at the preservation of the environment. Contemporary studies have noted an increase in the development of pro-environmental behaviors by the consumers which indicates that the consumers are now more aware regarding the importance of protecting their surrounding environment (Yue et al., 2020). Environmental responsibility has been mostly studied and debated under the pretext of corporate environmental responsibility (CER) and there is still a vacuum that exists with regards to its application in the context of consumers (Su et al., 2017). Attaran and Celik, (2015) have stressed on the need to study environmental responsibility from

the consumer's perspective because it is a domain that demands equal contribution from all the stakeholders of the society.

As far as individual environmental responsibility is concerned many researchers have tried to view it through the lens of the value-belief-norm theory (VBN). According to this theory environmental responsibility is an important antecedent that plays a critical role in the development of personal norms that in turn have a noticeable impact on a person's decision to exhibit environmentally friendly behavior (Stern, 2000).

Therefore, it can be deduced that environmental responsibility is an important predictor of eco-friendly behavioral outcomes. Many researchers have also argued that ER plays a significant role in developing individual readiness to demonstrate environmentally friendly behaviors (Clark et al., 2003). For instance, Zhu et al. (2019) posited that ER drives an individual to exert effort for the protection of the environment. Bar (2003) also contended that various levels of perceived ER enable an individual to develop resource conservation values.

According to Bar (2003) ER cause both the individuals and organizations to take responsibility for the environmental problems and modify their actions and behaviors in order to mitigate the negative environmental effects. Abrahamse and Steg (2009) posit that ER is associated with personal norms to a great extent which in turn result from certain obligations towards the nature and society in general. These personal norms and obligation then play a critical role in developing a sense of ER in an individual.

According to Zhu et al. (2019) these feelings and obligations play a major role in developing a sense of ER, environmental knowledge, concern, and environmental attitudes which in turn play an influencing role in driving an individual to understand the linkage between various environmental problems, identify causes of those problems and realize the importance of their actions that can aid in resolving those problems. Prior studies have also noted that environmental responsibility is developed as a result of the inculcation of pro-environmental values and environmental education (Sadachar et al., 2016). The consumers that are more environmentally aware and educated have a greater tendency to exert pressure on the organizations

to develop and manufacture environmentally friendly products (Li et al., 2020). Hsu et al. (2017) noted that environmentally aware and responsible consumers are more likely to develop green product buying intentions which in turn makes them feel more attached and connected to the importance of protecting their surrounding environment.

Moreover, it has been observed that the increase in consumer's environmental consciousness influences them to develop intentions to buy environmentally friendly products (Sreen et al., 2018). Similarly, Moser (2016) also noted that the enhanced consumer willingness to protect the natural environment induces them to buy and consume environmentally friendly products. Shim et al. (2018) posited that high environmental awareness develops a sense of environmental responsibility amongst the consumers which in turn causes them to engage in certain green behaviors such as buying green and eco-friendly products.

2.2   Environmental Knowledge

Davenport and Prusak (1998) define knowledge as a composition of experiences, values, information and insight which forms as the basis for evaluating new information and experiences. According to Bollinger and Smith (2001) knowledge is termed as the interpretation of a particular information on the basis of personal experiences, competencies and skills. Moreover, Bower (1990) describes awareness as the capacity to recognize and acknowledge the presence of an object and its attributes. Arboleda and Alonso (2014) contest that the awareness is a process that stems due to the constant inflow of learning and knowledge. Therefore, environmental knowledge refers to the awareness and knowledge possessed by an individual regarding environmental issues and their possible solutions. It includes the awareness regarding the effect of individual actions on the surrounding environment (Afsar et al., 2016).

According to Fryxell and Lo (2003) an individual's knowledge regarding his/her surrounding environment holds immense importance. Environmental knowledge signifies the process of assessing the environmental conditions in the context of

adopting a sustainable balance through the aid of various social and economic developments (Jamison, 2003). Prior studies have revealed antecedents that affect an individual's environmental behavior. For instance, Kaplan (1991) environmental knowledge significantly influences an individual's decision-making process. In general, it has been observed that people tend to distance themselves from situation regarding which they have limited knowledge.

Chan et al. (2014) argues that the individuals who possess more knowledge regarding various environmental issues tend to exhibit more eco-friendly behavior by consistently engaging in buying environmentally friendly products and services. Increased knowledge on the environment adds to overall environmental concerns and awareness of the people (Zsoka et al., 2013). Hence it can be ascertained that environmental knowledge, attitudes, and values are mainly influenced by positional and intentional factors that form the most important factors that influence an individual's level of environmental awareness (Zsoka et al., 2013).

There are also certain other external factors besides internal factors which significantly affect an individual's values, attitudes, knowledge and which in turn influence green behavior. These external factors consist of traditions and pressures that are derived from the social environment which includes family, friends, education, etc. These external factors contribute up to 80% of an individual's environmental awareness (Lukman et al., 2013).

Many studies conducted in the past have suggested that the green behavior of an individual is significantly influenced by the degree of environmental knowledge, awareness and concern present in the individual (Mostafa, 2009; Chan et al., 2014). The more the person's knowledge regarding various environmental issues is the more he/she is driven to engage in sustainable green behavior (Lukman et al., 2013). Chan et al., (2014) in their study highlighted the fact that an individual's level of environmental knowledge can greatly enhance his/her green behavior. For instance, individuals with a higher degree of knowledge regarding the environment tend to buy eco-friendly products and services and engage in environmental preservation activities. Another study undertaken by Tudor et al. (2008) indicated that increased environmental knowledge positively influences a person to engage

in green and eco-friendly behaviors. When the consumers possess more knowledge regarding the environment and its related issues, they will be more likely to develop green attitudes and behaviors (Afsar et al., 2016). Moreover, Al-Shemmeri and Naylor (2017) indicated that people will greater environmental knowledge are more committed towards the preservation of their surrounding environment and hence engage in eco-friendly behaviors such as buying green products.

2.3   Environmental Concern

Environmental Concern (EC) can be regarded as the views and opinions of an individual regarding various environmental issues and the attitudes that emerge as a result of interaction between the individuals and the environment (White & Simpson, 2013). Environmental concern has been termed as a major predictor of pro-environmental attitudes and behaviors Mcdonald et al. (2015). Newton et al. (2015) defines environmental concern as the consciousness of the individuals towards the environmental and ecological issues and a desire to undertake actions to mitigate them. Singh and Bansal (2012) describe EC as the consciousness of the people towards environmental issues and their perceptions regarding the importance of solving these issues. According to Weigel (1978) EC pertains to the awareness of an individual towards environmental issues which is reflected in various ways such as attitudes, recognition and response towards these issues. According to Wu et al. (2019) EC plays a constructive role in developing green behavioral intentions in an individual.

Researches and literature on environmental concern have mainly intertwined this construct with environmental attitudes of the consumers (Song & Luximon, 2019). There is a contemporary debate amongst the researchers with some stating it as a totally independent concept while others finding it difficult to conceptualize an operational definition (Kwon et al., 2016). The new ecological paradigm scale (NEP) developed by Dunlap and Van Liere (1978) has been widely regarded as the most comprehensive and quantitative conceptualization of environmental concern. Under this scale, environmental concern has been classified into two major facets. The

first focuses on the concerns regarding specific environmental issues (e.g., attitude of the individual towards disposal of waste or pollution) while the second facet encompasses a broader and universal conceptualization of environmental concern (e.g., the opinions of the individual on various ecological issues and the extent of relationship between the individuals and their surrounding environment).

Environmental concern has received increased attention over the past few decades and has become the center of attention for many researchers (Albayrak et al., 2013). This phenomenon was highlighted as a result of increased concerns of the people regarding environmental pollution and energy conservation during the 1970s (Hartman & Apaolaza-Ibanez, 2012). Environmental concerns then proliferated with the advent of the 21st century as a result of large-scale industrialization which resulted in a visible change in organizational activities and consumer behavior (Sarkis, 2011). Bang et al. (2000) posited that the increased environmental concerns depicted by the consumers have resulted in energy savings and the use of greener and renewable products by the businesses.

Presently, there are a plethora of global environmental problems and dilemmas that play a critical role in developing an individual's level of environmental concern (Wu et al., 2019). These issues may include climatic change, natural disasters and a decrease in biodiversity. These environmental issues can pose a serious risk to the global ecosystem which is why it can become a matter of serious concern for the people in terms of preserving and protecting their surrounding environment (Felix et al., 2018). According to Sarkis (2011) the prevailing environmental issues play a critical role in enhancing the level of levels of environmental concern and this in turn drives the people to act in an environmentally responsible manner which also includes making changes in their buying behavior.

The increase in consumer concerns pertaining to their environment will lead to a steep reduction in the production of goods and services that pose a risk to the environment and the consumers will be more driven towards adopting green environmentally friendly products (Thieme et al., 2015). Hartman and Apaolaza-Ibanez (2012) observed that the environmental concerns of the consumers have become a major influencing factor that drives the consumers to engage in green

product purchase behavior. Czap and Czap (2010) in their study concluded that consumers having a higher degree of environmental concern are more likely to demonstrate eco-friendly behavior by engaging in green product buying behavior.

The global consumer survey undertaken by Nielsen in 2019 depicts that a large number of consumers inculcated sustainability associated factors in their product purchasing process. According to the survey 73% of the respondents were inclined to change their spending behavior in order to mitigate the risk of causing harm to the environment and they showed increased interest in adopting and using eco-friendly products (Nielsen, 2019).

Carter and Rogers (2008) argued that with the increase in the environmental concerns of the buyers, social activities such as waste reduction will occur which will result in positive environmental outcomes. Hence it can be deduced that environmental concern not only encompasses concern towards environmental issues but also inculcating radical changes in consumer behavior and business activities. Moreover, Song and Luximon (2019) posited that environmental concern in the future may present opportunities for businesses in terms of sustainable business management and attaining competitive advantage.

Studies on environmental concern have noted that the consumers that are more aware regarding the importance of protecting their environment are more likely to exhibit higher levels of environmental concern (Felix et al., 2018). Harman and Apaolaza-Ibanez (2012) in their study observed the direct and indirect effects of environmental concern and concluded that environmental concern positively and significantly affects the consumer attitudes and purchase intention towards adopting green products and services. The results of the study reinforced the direct and indirect relation of environmental concern with green behavioral outcomes in general. Moreover, according to Hutchins and Greenhalgh (1997) the purchase intentions of the consumers towards environmentally friendly products are significantly enhanced by environmental concern. The authors posit that the individuals who depict higher levels of environmental concern influence the behaviors of others through peer/family pressures which results in others engaging in eco-friendly behaviors. According to Sadachar et al. (2018) the more the knowledge the greater

the environmental concern will be. Researchers have regarded environmental concern as a social behavior that emerges as a result of increased desire of an individual to protect his/her natural environment and future generations (Slavoljub et al., 2015). According to Hsu et al. (2017) the consumer knowledge regarding the adverse impacts of various business activities and products usually leads towards the development of environmental concern.

2.4 Green Product Availability

Green Product Availability mainly refers to the availability of such products that possess certain eco-friendly and sustainable features (Zakowska-Biemans, 2011). The increase in the level consumer's environmental responsibility and awareness has led to calls for adoption and usage of green products (Gottschalk & Leistner, 2013). According to Shahnaei (2012) green product availability is one of the major antecedents that drive the consumers to develop green purchase intentions. However, despite an increase in awareness, the consumers are still ill informed regarding the green products and their features and attributes.

Sharaf and Perumal (2018) noted that environmentally aware consumers are more likely to purchase and consume green products but sometimes the unavailability of these products stands as a barrier in the way of their purchase. This can be mainly attributed to the fact that local shops and farmers' markets have reduced in number which has increased the level of inconvenience faced by green product consumers (Kaufmann et al., 2012). Sharaf and Perumal (2018) noted that green products are present in a limited number and are usually improperly placed in major shops and markets. A study by Gottschalk and Leistner (2013) indicated that 52% consumers exhibited interest in buying green products but did not buy them because of the difficulties associated with locating such products.

A study by Shahnaei (2012) indicated that the consumers usually demonstrate increased levels of motivation to purchase and use green products but they are unable to do so because of the difficulty associated with locating the green products and their availability. Mainieri et al. (1997) posited that a major reason

behind the lack of the development of pro-environmental behaviors (PEBs) is the scarce availability and poor marketing of green products. Many researchers argue and emphasize that a major strategy to drive the consumers to engage in green consumption behavior is make the availability of green products easy by placing them in close proximity to the consumers.

There are many green campaigns and pro-environmental initiatives that are undertaken to drive the consumers to adopt and use green products. But these campaigns are usually met with failures. The major reason behind the failure of such campaigns is that the green products are not easily available to the end users which is why the consumers are unable to develop green consumption patterns (Kaufmann et al., 2012). The purchase decision process model posits that the consumers are more willing and eager to buy those products that are readily available and save their time. Tung et al. (2017) also indicated that green product availability is a major antecedent and precursor of green purchase behavior. Moreover, Shahnaei (2012) also posited that green product availability drives the consumers to engage in green consumption behavior.

2.5 Green Consumption Intention

Green Consumption Intention can be termed as a consumption behavior which encompasses the efforts to mitigate the adverse effects of consumption on the environment during the process buying, using and disposal especially with regards to the buying of eco-friendly products (Pagiaslis & Krontalis, 2014). Researches have pointed towards the fact the green consumption intention can effectively lead to the development of green consumption behavior (Ghali-Zinoubi & Toukabri, 2019). Moreover, academicians have undertaken extensive studies to examine the influencing role green consumption intention (Tung et al., 2017). This influencing role can be categorized into three main dimensions.

The first dimension mainly focuses in identifying the difference between the characteristics of green consumers through the aid of various marketing segmentation tools (Diamantopoulos et al., 2003). It was noted that the green consumption

behavior of various green consumers is influenced by demographic factors such as age, sex, family, education and income levels Chekima et al. (2016). Many scholars oppose this view and argue that the demographic factors cannot individually determine the green consumption behavior of consumers (Zhang et al., 2019).

The second dimension focuses in the psychological factors that influence green consumption behavior of individuals (Choi et al., 2015). These psychological factors include environmental knowledge, perceived green value and perceived self-identification that aid in conceptualizing green consumption behavior in an effective manner. This dimension however neglects the influence of external factors that drive an individual to engage in green consumption behavior.

The third dimension explores the decision-making process of the consumer's green consumption behavior with an attempt to explore the reason behind the decision to buy eco-friendly and green products (Maniatis, 2016). Amongst these reasons, behaviorism, rationalism, and empiricism aid in explaining the rationale behind the decisions of the consumer to purchase and consume green products.

The rationalist viewpoint posits that the consumers gather as much information as necessary while considering to buy green products in order make rational decisions (Martinez et al., 2020). Although, the consumers may not engage in this complex information collecting process each time and may not engage in making logical and rational purchases in reality. On the other hand, the behaviorist school of thought advocates that the consumers possess certain skillsets and knowledge that is required to ascertain the efforts that will be required to make certain green purchase decisions and then adopt a suitable strategy accordingly (Xu et al., 2020). The critics of this viewpoint argue that the behaviorist viewpoint lacks the explanatory power when it comes to green purchasing with higher consumer involvement.

The empiricist viewpoint posits that the consumers make green purchase decisions that are mostly based in their emotional preferences for such products and the influence of these emotional factors on their purchase decisions rather than rational factors (Cerri et al., 2018). Summing it up, the existing body of literature on green consumption mainly regards green consumption behavior as a type of consumption behavior and hardly acknowledges it as a environmentally responsible

behavioral outcome. In addition to this, the influence of consumer environmental responsibility on green consumption intention has not been fully examined and assessed.

The prevailing environmental issues such as climate change, global warming, pollution etc. have played a critical role in enhancing the level of environmental awareness of the people (Xu et al., 2020). These issues have driven the people to act more responsibly by engaging in pro environmental behaviors (PEBs). One such PEB is the development of green consumption behavior (Sarkis, 2011). Green consumption behavior occurs as a result of increased environmental awareness which in turn induces an individual to develop pro environmental attitudes. The pro-environmental attitudes play a constructive role in driving an individual to engage in green consumption behavior by purchasing products that are eco-friendly (Maniatis, 2016).

Many studies have indicated an increasing trend amongst the people with regards to the adoption, usage and consumption of green products. It has been observed that with increase in the levels of environmental awareness, the people are now more motivated and willing to engage in green consumption behavior by purchasing green and environmentally products. On the other hand, various businesses are also undertaking initiatives that are aimed at shaping consumer attitudes and influencing them to develop green consumption intentions. The organizations are undertaking efforts that are aimed at targeting the belief systems of the consumers by adding new beliefs that can result in the development of pro-environmental attitudes.

A lot of studies have been undertaken in order to assess the various factors that play a critical role in driving consumers to engage in green consumption behavior. For instance, Xu et al. (2020) indicated that environmental awareness and knowledge regarding environmental issues led the people to develop green consumption intentions. Another study by Attaran and Celik (2015) showed that green consumption intentions are developed as a result of the development of pro-environmental attitudes that arise due to increased awareness regarding environmental issues. Wu and Yang (2018) in their study also found a positive and

significant linkage between environmental awareness and green consumption behavior. Furthermore, Chuang and Huang (2018) observed that the environmental issues led towards the development of environmental consciousness in the people which in turn caused them to adopt and engage in pro-environmental behaviors such as buying and consuming green products and services.

2.6 Environmental Responsibility and Green Consumption Intention

Environmental Responsibility has been derived from the model of norm activation of social psychology that has been applied across various disciplines which include environmental sociology, environmental education, and consumer behavior (Xu et al., 2020). Environmental Responsibility encompasses a sense of deeper responsibility that stimulates the individuals to exhibit increased attention towards key environmental issues, and motivates them to undertake efforts that are aimed at taking responsibility for the protection of their surrounding environment as well as promoting the practice of engaging in pro-environmental behaviors (Stone et al., 1995). Previous researches have indicated that environmental responsibility has a significant relationship with environmental education which varies across different cultures (Slavoljub et al., 2015). Furthermore, the positive association between environmental responsibility and green consumption intention has been examined across multiple cultural contexts.

For instance, Kaiser and Scheuthle (2003) posited that a positive association existed between consumer environmental responsibility and environmentally friendly consumption behavior amongst Swiss residents. Attaran and Celik (2015) further observed that consumers with a high degree of environmental responsibility are more likely to exhibit green purchase intentions towards green products in the USA. Several studies in the Chinese have also highlighted the increasing significance of environmental responsibility and its relationship with green consumption behavior (Xu et al., 2020). Prior studies have suggested that an accurate prediction of environmental behavioral intention can be carried out by inculcating

environmental responsibility into the theory of planned behavior (Hines et al., 1987). For instance, Stern et al. (1999) developed an environmental behavior model which suggests that an individual's sense of environmental responsibility is closely associated with his/her environmental behavior.

Xu et al. (2020) observed that a high degree of correlation existed between environmental responsibility and environmentally friendly behavior i.e., the individuals possessing a higher degree of environmental responsibility will be more driven towards exhibiting environmentally friendly behavior.

Environmental responsibility is a reflection of several spiritual qualities such as perseverance, courage, public spirit and self-restraint of the individual when it comes to solving ecological problems. Adopting this line of reasoning will clearly explain that environmental responsibility is a critical and powerful antecedent that drives the individuals to act responsibly and exhibit environmentally friendly behavior (Wu & Yang, 2018).

Therefore, the present study makes an assumption that there is a significant and positive association between environmental responsibility and green consumption intention. It means that environmental responsibility is an individual obligation in case he/she is willing to undertake an effort to address environmental issues on a personal level. Hence the following relationship has been hypothesized:

H$_1$: *Environmental responsibility has a positive relationship with green consumption intention.*

2.7 Environmental Responsibility and Environmental Concern

Environmental concern has often been acknowledged as a critical antecedent and predictor of environmentally friendly behavior and plays a major role in influencing individuals to engage in green purchase behavior (McDonald et al., 2015). The studies in environmental concern can be dated back to 1960s. Initially, the researchers did not define environmental concern and mainly associated it with

other environmental attitudes (Roberts & Bacon, 1997). Many researchers were of the view that environmental concern was a self-evident phenomenon while other found it difficult to present a clear comprehension of environmental concern (Fujii, 2006). Therefore, the concept of environmental concern is mainly an operational definition. Dunlap and Van Liere (1978) developed and presented the new ecological paradigm scale (NEP) which can be considered as an early attempt to present an abstract definition of environmental concern.

Environmental concern has been classified into two main categories i.e., environmental concern that is comprehensive and universal such as views and opinions on various ecological issues etc. and the environmental concern towards various specific environmental issues such as attitudes towards the disposal of waste material etc. The present study adopts the former definition for the purpose of this study which acknowledges environmental concern as a holistic and universal view of various environmental issues.

Prior studies on pro environmental behavior have indicated a strong association between environmental responsibility and environmental concern (White & Simpson, 2013). For instance, Chuang and Huang (2018) observed that individuals with a higher sense of environmental responsibility were more attentive towards environmental problems and advocated the use and adoption of green products because they felt that humans were solely responsible for the occurrence of various environmental issues.

Sadachar et al. (2016) also posited that individuals possessing a higher degree of environmental responsibility are more driven towards environmental issues and they are of the view that there is a close connection between humans and their surrounding environment. They also tend to believe that humans are responsible to safeguard their environment and solve the prevalent ecological problems. In light of these findings, it can be said that a higher sense of environmental responsibility leads towards the development of a higher sense of environmental concern. Therefore, the present study proposes the following hypothesis:

H₂: *Environmental responsibility has a positive relationship with environmental concern.*

2.8 Environmental Knowledge and Green Consumption Intention

Many studies have indicated that environmental knowledge (EK) plays a major role in driving an individual to engage in eco-friendly behaviors and actions. For instance, Sadachar et al. (2016) in their study indicated that an individual's level of EK has a significant and noticeable impact on his/her attitude towards buying and using green products and services. Sang and Bekhet (2015) also observed a positive relationship between an individual's level of environmental knowledge and his/her attitude towards engaging in green consumption behavior.

Similarly, Wu et al. (2019) in their observed that the individuals who possessed a greater degree of knowledge regarding their environment showed increased concern and hence were more willing to pay for products that are renewable, eco-friendly, and pose less or no harm to the environment. Furthermore, Chuang and Huang (2018) also indicated that higher levels of EK are positively associated with the development of pro-environmental attitudes which in turn induce an individual to engage in pro-environmental behaviors such as buying green products and services. The body of literature indicates the presence of enough empirical evidence for this study to propose the following hypothesis:

H₃: *Environmental Knowledge is positively related with green consumption intention.*

2.9 Environmental Knowledge and Environmental Concern

Chan et al. (2000) describes environmental knowledge (EK) as one's understanding and comprehension of nature, the surrounding environment, environmental issues, and the potential impact of those environmental issues. Many studies have been undertaken in order to understand the impact of an individual's level of environmental knowledge and its role in developing eco-friendly behavioral outcomes.

For instance, many researches have observed that EK plays a significant role in developing environmental concern and awareness (Unal et al., 2018). Lee (2010) posited that the people a higher level of EK are more aware of the environmental issues and tend to act and engage in pro-environmental behaviors.

In a study by Oguz et al. (2010) it was observed that the households which were engaged in buying eco-friendly products demonstrated higher levels of environmental knowledge. According to Suki (2016) EK drives an individual to be more concerned regarding the environment as a result of which the individual develops pro-environmental attitudes that led towards the depiction of environmentally friendly behavioral outcomes. In light of these findings, this study hypothesizes the following relationship:

H$_4$: *Environmental Knowledge is positively related with environmental concern.*

2.10 Environmental Concern and Green Consumption Intention

Many studies and researches have indicated that environmental concern has a direct and positive relation with green consumption intention (Suki, 2016). In general terms, individuals will a higher sense of environmental concern are more driven to react to various environmental issues and undertake efforts for the preservation of their surrounding environment (McDonald et al., 2015). Mostafa (2009) observed that environmental concern was a major predictor of green consumption behavior and that there was a striking difference in environmental concern of green and non-green consumers.

Suki (2016) posited that strong environmental concern can be reflected in the products that are used by consumers and the individuals having a higher degree of environmental concern are more inclined to adopt and buy green products. The consumers that are more concerned about their surrounding environment are more likely to undertake efforts for environmental protection. Hence, the consumers who possess a higher sense of environmental concern demonstrate more willingness

to engage in green consumption behavior by paying for environmentally friendly products and services (Xu et al., 2020). Therefore, in light of these findings, the current study proposes the following hypothesis:

H$_5$: *Environmental concern has a positive relationship with green consumption intention.*

2.11 Environmental Concern as a Mediator

On the basis of the relationships between environmental responsibility, environmental knowledge, environmental concern, and green consumption intention, the present study makes an assumption that environmental responsibility and environmental knowledge positively influence pro environmental behaviors such as green consumption intention, through the mediatory role of environmental concern.

According to a survey undertaken on Swiss consumers, Kaiser and Scheuthle (2003) observed that by adding environmental responsibility to the existing theory of planned behavior (TPB), the explanatory power of the attitude variables is significantly enhanced which suggests that environmental responsibility is a critical antecedent and precursor of various environmental attitudes such as green consumption.

Young et al. (2010) also investigated the consumers who had a sense of environmental responsibility towards the prevalent environmental problems. The results of the study indicated that the consumers demonstrated increased concerns about their surrounding environment and were more likely to engage in purchasing those products that were less likely to pose any harm to the environment. Therefore, in light of these findings, the impact of environmental responsibility and environmental knowledge will pass through environmental concern before influencing green consumption intention. Hence, the following relationship has been hypothesized:

H$_6$: *Environmental concern plays a mediating role in the relationship between environmental responsibility and green consumption intention.*

H$_7$: *Environmental concern plays a mediating role in the relationship between environmental knowledge and green consumption intention.*

2.12   Moderating Role of Green Product Availability

The robust pace of environmental degradation has led to increased calls by various societal groups to undertake measures aimed at environmental preservation and protection. The advent of social media platforms and their mass penetration and usage has eased up the equal availability of information to all individuals. Hence, the consumers are now more informed about their surrounding environment and the various issues that are adversely impacting it. By continuously consuming such information, there has been a visible change in the attitudes of the consumers with regards to the manner in which their behaviors affect the environment.

The consumers are now more informed, possess more knowledge and act more responsibly in terms of conserving and protecting their surrounding environment. One such action that has been witnessed is the involvement of consumers in green consumption behavior. The consumers demonstrate increased intention towards buying products that possess a low carbon footprint, are eco-friendly and pose less to no harm to the environment.

However, there has been a major obstacle that has hindered the activation of green consumption behavior amongst environmentally responsible consumers. This hindrance has been caused mainly due to the availability of green products in the consumer market. The environmental responsibility and knowledge cannot be converted into behavior unless there are green substitutes available in the market that will suppress the demand of conventional products.

Green products are mainly available at the high-end stores due to which their reach is limited only to the affluent consumers and this has been the major reason due to which green consumption behavior has not been fully activated amongst the masses. Therefore, it becomes imperative for the organizations and manufacturers

of green products to ensure the availability and ease of access of these products to all segments of the society in order to ensure the effective activation of green consumption behavior.

Green Product Availability mainly refers to the availability of such products that possess certain eco-friendly and sustainable features (Zakowska-Biemans, 2011). The increase in the level consumer's environmental responsibility and awareness has led to calls for adoption and usage of green products (Gottschalk & Leistner, 2013). According to Shahnaei (2012) green product availability is one of the major antecedents that drive the consumers to develop green purchase intentions. However, despite an increase in awareness, the consumers are still ill informed regarding the green products and their features and attributes.

The availability of green and eco-friendly products has been labelled as a critical factor that influencing an individual to engage in green consumption behavior (Young et al., 2010). One of the major reasons behind the lack in adoption of green values and green consumption behavior is the lack of availability of green products. The non-availability of green products drives the consumers to buy other conventional products that may pose a certain risk to the environment (Gottschalk & Leistner, 2013).

Walia et al. (2020) in their study on the factors influencing green purchase intentions noted that that the unavailability of green products was a major reason that impeded the efforts to mitigate the harmful effects of environmental degradation. The authors further posited that the effective marketing of green products, and making sure that these products are easily and readily available to the consumers will lead towards the development of green purchase intentions amongst the consumers. Furthermore, Shi et al. (2017) indicated that green product availability was a major factor that drives the consumers to engage and develop green consumption patterns.

According to Wang et al. (2016) green product availability induces the consumers to willingly buy and purchase green products. Walia et al. (2020) suggested that the organization need to undertake radical measures that are aimed the promoting green products through large scale marketing efforts and by making sure that

green products are readily and easily available and accessible to the end users. These efforts will result in the development of green behavioral intentions and consumption patterns as the consumer will be more willing to buy and use green products. Hence, in light of the findings mentioned in the literature this study posits the following hypothesis:

H$_8$: *Green product availability moderates the relationship between environmental concern and green consumption intention.*

2.13   Underpinning Theory

The prior inquires undertaken by many researchers, scholars, and academicians have viewed the influence of the pro-environmental behaviors onto green consumption through the lens of the theory of planned behavior (TPB) (Ogiemwonyi & Harun, 2019). The TPB evolved from the theory of reasoned action that was vastly utilized to examine individual behavioral outcomes (Ajzen, 1991; Wang et al., 2016; Shi et al., 2017). The TBP posits that behavioral intentions are influenced by three major antecedents namely: attitude, subjective norms, and perceived behavioral control (Ajzen, 1991). Attitude is regarded as an individual's mental programing that leads him/her to exhibit certain behavior (Ajzen, 1991). In the context of the current study, attitude can be seen as an evaluation of the current environmental issues and the benefits that arise from the adoption of the green products. Hence, the more positive a consumer's attitude towards the green products is, the more will be their inclination to develop green consumption intentions (Ru et al., 2018).

The second component of the TBP theory are subjective norms. Subjective norms can be referred to as the perceived societal pressures to indulge or not indulge in a particular behavior (Ajzen, 1991). Subjective norms include the influence of other such as family, friends, colleagues etc. in driving an individual to perform a certain behavior. In the context of consumer behavioral studies, subjective norms have been shown to drive an individual to exhibit green purchase and consumption behaviors (Zhou et al., 2013). Perceived behavioral control can be termed as the

perceived feeling of ease or discomfort in exhibiting a certain behavior (Ajzen, 1991). Therefore, it can be deduced that when consumers possess a strong degree of environmental responsibility and environmental knowledge and that there are no obstacles in the way of purchasing green products, they will be more inclined to develop green consumption intentions (Yen et al., 2017).

Recently, many researchers have deployed the theory of planned behavior to examine and observe various environmental behavioral outcomes. For instance, Chen and Tung (2010) noticed that TBP is an essential framework for explaining the recycling intentions of the consumers. Klockner et al. (2013) posited that TBP is a valid theory to predict and explain the willingness of the consumers to buy eco-friendly products. Moreover, the TBP model has been successfully applied across various contexts in order to study green consumption behaviors. It has been validated in studies observing the factors influencing green purchase intentions (Chen & Tung, 2014; Zhou et al., 2013, Chen & Peng, 2012).

2.14 Conceptual Framework/Proposed Model
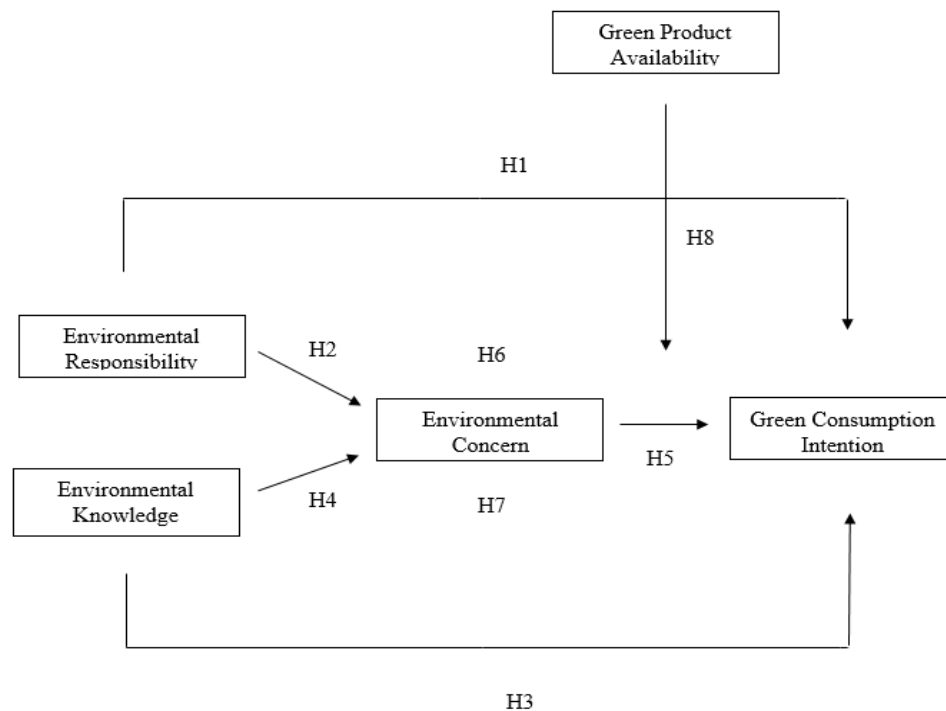
FIGURE 2.1: Conceptual Framework

Chapter 3

Research Methodology

This chapter sheds light on the methodology that was adopted by the present study to examine the mediating and moderating role of environmental concern and green product availability in the relationship between environmental responsibility and green consumption intention. A research methodology elucidates the approach that has been used by the researcher in order to determine the validity of the proposed hypotheses. It is imperative for the researcher to clearly outline the methods that have been applied because it adds to the overall credibility of the research. This section includes: research design, population/universe, sampling technique, unit of analysis, time horizon, instrument development, data collection and the data analysis techniques that were deployed to determine the validity of the proposed hypotheses.

3.1   Research Design

A research design usually refers to the overall approach that is adopted by the researcher to address the underlying research problem in an effective manner. Choosing the right research design is therefore an essential task. The research design should be in harmony with the underlying research problem and should integrate all the components of the research in a manner that is logical and coherent (Bordens & Abbott, 2002).

There are many research designs that have been used by researchers in the domain of management and social sciences. However, two major schools of thought exist in this regard. One is interpretivist view and the other is the positivist view (Hovorka & Lee, 2010). An interpretivist school of thought envisages that the reality/phenomenon cannot be truly examined without a certain degree of human intervention. On the other hand, the positivist view suggests that the reality is best examined without any sort of human intervention (Sobh & Perry, 2006). Interpretivism advocates the use and application of various qualitative methods to examine a particular phenomenon. These qualitative methods include interviews, observations etc., whereas, positivism emphasizes on the use and adoption of quantitative techniques to analyze a certain phenomenon. These quantitative techniques include: questionnaires, surveys, and various other mathematical, statistical and computational approaches and procedures.

One of the major underlying implications of the present study is to develop a theoretical framework on the basis of strong empirical evidence that can add value to the existing literature and at the same time aid in gain a deeper understanding regarding the antecedents of green consumption intention. Therefore, a positivist research design was deemed to be more suitable for the purpose of this study as it aided in obtaining evidence that is based on staunch empirical facts and figures. Under this design, a quantitative approach was deployed that involved the application of various statistical procedures to obtain that empirical evidence.

3.2   Population/Universe

A population or universe refers to the area of focus or interest of the researcher. A universe might include a certain group(s), community, individuals etc. It is important for the researcher to determine the right universe because an improper identification of the universe can confound the overall results of the study.

The current study is focused on examining the antecedents and precursors that lead towards the development of green consumption intentions. Prior studies on green consumption in the Asian cultural context have considered the consumers

of cosmetics and personal care products to examine the antecedents of green consumption intentions (Liobikienė & Bernatonienė, 2017). However, other studies have broadly analyzed all those consumers who are environmentally aware and exhibit a constant green consumption behavior (Yue et al., 2020).

The population of the current study comprised of the consumers of green cosmetic and personal care products in Pakistan. The demographic factors included those consumers who are above the age of 18. As far as the gender is concerned both males and females' users of green personal care and cosmetic products were considered. The education (min: high school) and income levels was also factored in towards the determination of the target population. Moreover, the population comprised of the green product consumers that are residing in the metropolitan cities of Rawalpindi and Islamabad only. These green consumers included university students, white-collar workers, and housewives etc.

3.3 Determination of Sample Size and Sampling Technique

At times, it becomes difficult for the researcher to incorporate the responses of the whole population for the purpose of analysis. Therefore, a sample size is chalked out from the universe which serves as the representation of the entire target population.

Researchers have debated over the fact as to what should be the appropriate suitable sample size for a research. There is still no unanimous opinion or rule regarding the determination of a suitable sample size (Hair et al., 2006). However, there are various views that have been posited by researchers that can aid in determining the right sample size.

One such sample size determination method is the Roscoe's rule of thumb that was posited by Roscoe, (1975). According to this rule of thumb, a sample size ranging between 30-500 is considered to be appropriate for most researches. However, this rule of thumb does not clearly specify the exact number for a suitable sample size.

On the contrary, Tanaka (1987) posited the item response theory that outlined a procedure to calculate a sample size based on the number of items included in the scales. According to the item response theory, 10 responses are required against 1 item (10:1). If this theory is applied to the context of this study, the total sample size will come out to be 150 because the items included in the scales are 18 (18*10=180). But Arrindell and Van der Ende (1985) argue that 10 responses are insufficient and are still prone to error.

Arrindell and Van der Ende (1985) posit that 20 responses are to be required against 1 item (20:1). By utilizing this technique, the sample size will be larger and less prone to error. By applying this approach, the total sample size comes out to be 360 since there are 18 items in the scale that has been developed to measure the study constructs. (20*18=360).

However, many researchers deem the Slovin's power formula to be a credible sample size determination method (Ryan, 2013). The Slovin's power formula is as follows:

Figure 3.1: Slovin's power formula

$$n = N \ / \ 1+Ne^2$$

where; n = sample size, N = population, e = margin of error (taken as 5%)

Through the application of the above depicted formula, a researcher can determine the exact sample size that is required for carrying out the research. The current study will also deploy the Slovin's power formula to define a suitable sample size. The population for the study has been estimated to be around 2 million consumers. By assuming this population, the sample size has been calculated as follows:

$$n = 2000000 \; / \; 1 + 2000000 \; x \; (0.05)^2 \; n = 400$$

Another important aspect is to determine a suitable sampling technique to obtain responses from the study participants. Sampling techniques are mainly classified into two main categories namely: probability and non-probability sampling.

In a probability sampling technique, every member of the target universe stands an equal chance of selection whereas in a non-probability sampling technique, each member of the population does not stand an equal chance of selection.

Since the exact size of the target population is not known, the current study deployed a non-probabilistic convenience sampling technique in order to obtain responses from the target universe. In a convenience sampling technique, the researcher obtains data from the respondents that are most conveniently and readily available. Furthermore, a non-probability sampling technique aids in obtaining data in a fast, convenient and cost-effective manner.

3.4 Unit of Analysis

The unit of analysis of the current study was individual as it was focused on the individual consumers of green cosmetic and personal care products that are residing within the vicinity of the metropolitan cities of Rawalpindi and Islamabad.

3.5 Time Horizon

The current study adopted a cross-sectional time horizon because the data was obtained from the respondents at one point of time only.

3.6 Development of Measures/Scales

All the measures for the current study were adopted from the researches that have been undertaken in similar contexts. The measures were checked for reliability via (pilot testing) in order to determine the level of internal consistency in between the items. A 5-point Likert scale will be deployed (i.e., 1=strongly disagree...5=strongly agree) to gauge the responses of the participants. The scale will be divided into two sections. The first section obtained demographic information such as age, gender, education and income levels etc. The second section comprised of the items of the constructs. The table below depicts the variables, items, and the sources from where these items have been adopted.

TABLE 3.1: Measurement Scales

Variable	Items	Source
Environmental Responsibility	4	Powell et al., (2011)
Environmental Knowledge	3	Mostafa (2007)
Environmental Concern	4	Mostafa (2009); Chen & Tung (2014)
Green Product Availability	3	Kim et al., (2012)
Green Consumption Intention	4	Sheng et al., (2019)

3.7 Data Collection

The data was obtained through the aid of a questionnaire. The survey forms were disbursed in both ways i.e., hard and digital formats. All ethical guidelines as prescribed by the APA were followed in true letter and spirit during the process of data collection. These include the right to privacy, informed consent and voluntary participation.

3.8 Data Analysis Techniques

The data extracted trough the survey forms was organized and analyzed using the SMART PLS software. A plethora of statistical tests were conducted in order

to assess the validity of the proposed hypotheses. These tests include: reliability, validity, structured equation modelling (SEM), multiple regressions, and a mediated-moderation analysis. Key conclusions and observations were drawn on the basis of this empirical analysis.

3.8.1 Correlation

A correlation analysis aids the researcher in determining the magnitude, direction and degree of association between multiple constructs. A Pearson coefficient of more than 0.50 indicates a high degree of correlation. Correlation analysis was beneficial in the context of this study since it contains multiple constructs.

3.8.2 Regression

A regression analysis significantly aids in tracing the effect of a unit change in the predictor variable onto the outcome variable. On the basis of this analysis, a researcher can draw valuable conclusions regarding the relationships between multiple constructs.

3.8.3 Mediated-Moderation

A moderation analysis aids in examining whether the presence of a moderator variable strengthens or weaken the association between a predictor and outcome variable. On the other hand, a mediation analysis determines whether a particular relationship between two variables is explained through a third variable. Both these techniques were beneficial in the current context because the study contains a moderator (i.e., green product availability) and a mediator (i.e., environmental concern).

Chapter 4

Results

4.1 Data Analysis

This chapter elucidates a thorough analysis of the data that was obtained to assess the impact of environmental responsibility and environmental knowledge on green consumption intention. Moreover, the mediating and moderating roles of environmental concern and green product availability were also analyzed respectively. The section depicts the results that were generated through the use of various quantitative and statistical techniques. Firstly, an analysis of all demographic characteristics of the respondents has been carried out. This is followed by a reliability analysis to check the construct reliabilities and then a correlation and regression analysis has been performed to assess the direct and indirect effects of the predictor variables onto the outcome variables. The SmartPLS software has been used to perform the various statistical tests and procedures. Finally, the findings have been presented towards the end of this chapter.

4.2 Response Rate

The sample size for this study was 400 which was calculated using the Slovin's power formula. A questionnaire was used to obtain data form the selected sample. A convenience sampling approach was adopted to obtain data from various

consumers of green products residing in Rawalpindi and Islamabad. Reminders were sent to the respondents to speed up the data collection process. A total of 400 questionnaires were disbursed out of which 346 were returned. Out of those 346 forms that were returned, 328 were deemed as usable. Therefore, the overall response rate was 86.5% and the usable response rate was 82%. The table below shows the overall response rate and usable response rate.

TABLE 4.1: Response Rate

Questionnaires Circulated	Questionnaires Returned	Usable Questionnaires	Response Rate %	Usable Response Rate %
400	346	328	86.50%	82%

4.3 Demographic Analysis

The questionnaire used for this study consisted of two sections. The first section captured the demographic information of the respondents such as: gender, age, education, and income. Whereas, the second portion captured the responses of the participants that were later used to check and validate the proposed hypotheses.

TABLE 4.2: Gender Distribution

		Frequency	Percent	Valid Percent	Cumulative Percent
	Male	205	62.5	62.5	62.5
Valid	Female	123	37.5	37.5	100
	Total	328	100	100	
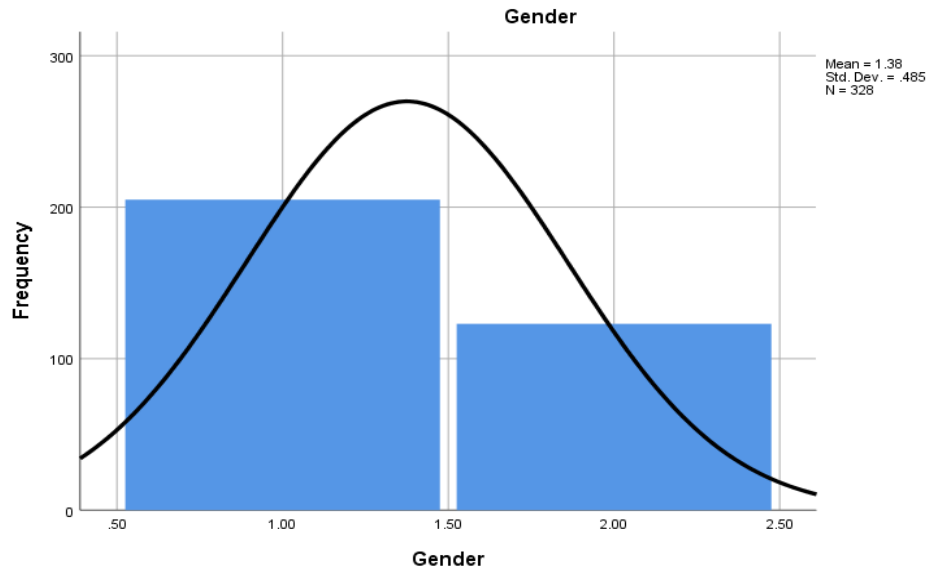
FIGURE 4.1: Gender Distribution

Table 4.2 depicts the gender distribution of the respondents who took part in the study. A histogram showing the distribution along with the distribution curve is also shown in figure 4.1. It can be observed that 205 males took part in this study which accounts for 62.5% of the total sample size. On the other hand, 123 females also took part in the study and constituted 37.5% of the total sample size. It can be seen that a majority of the respondents were males though the female participation was also sizeable.

TABLE 4.3: Age Distribution

	Frequency	Percent	Valid Percent	Cumulative Percent
20- 30 years	143	43.6	43.6	43.6
31 - 40 years	156	47.6	47.6	91.2
41 - 50 years	21	6.4	6.4	97.6
51 - 60 years	8	2.4	2.4	100
Total	328	100	100	

The age distribution of the respondents can be observed in table 4.3 along with its visual representation in figure 4.2. It can be observed that 143 participants were aged between 20-30 years and accounted for 43.6% of the sample size.
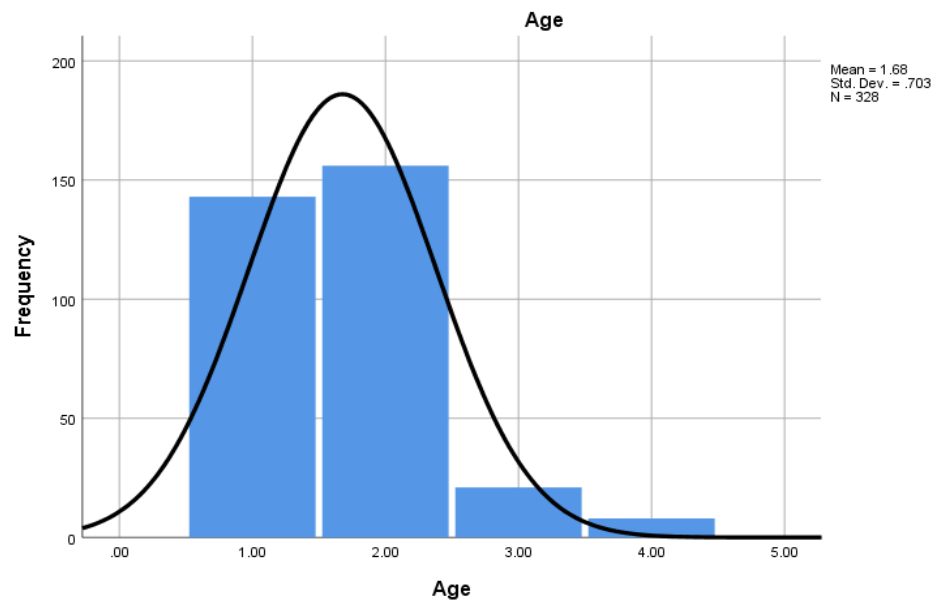
FIGURE 4.2: Age Distribution

156 respondents were aged between 31 to 40 years and constituted 47.6% of the entire sample. 21 participants were aged between 41 to 50 years and accounted for 6.4% of the sample size whereas only 8 respondents were above aged between 51-60 years and accounted for only 2.4% of the entire representative sample.

TABLE 4.4: Education Distribution

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	High School/-College	133	40.5	40.5	40.5
	Undergraduate	121	36.9	36.9	77.4
	Post-Graduate	74	22.6	22.6	100
	Total	328	100	100	

The **Table 4.4** shows the respective qualifications of the participants. It can be seen that 133 participants possessed a college degree and made up 40.5% of the sample size.
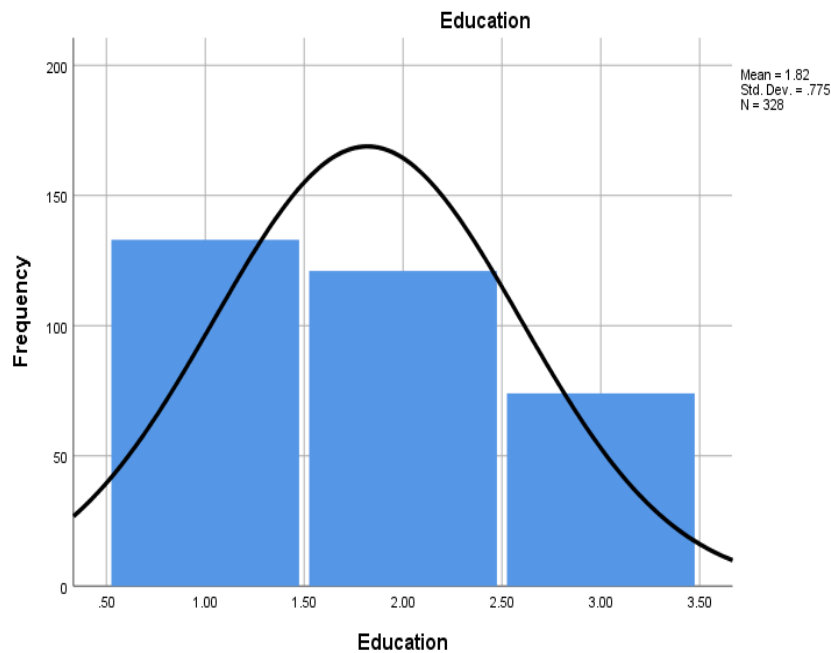
FIGURE 4.3: Education Distribution

121 respondents had an undergraduate qualification and they accounted for 36.9% of the entire sample size. Whereas, 74 participants possessed a post-graduate qualification and they accounted for 22.6% of the representative sample. The normal curve can also be seen through a histogram shown in figure 4.3.

TABLE 4.5: Income Distribution

	Frequency	Percent	Valid Percent	Cumulative Percent
Below Rs50,000	173	52.7	52.7	52.7
Rs.50,000 - Rs.100,000	98	29.9	29.9	82.6
Rs.100,000 - Rs.200,000	35	10.7	10.7	93.3
Above Rs.200,000	22	6.7	6.7	100
Total	328	100	100	

The income distribution of the participants can be viewed in table 4.5 along with a visual representation in figure 4.4. According to the income distribution, 173 participants had a monthly income of less than Rs.50,000 and they accounted for 52.7% of the sample size. 98 respondents had an income the ranged between Rs.50,000 to Rs.100,000.

They constituted 29.9% of the total sample size. 35 respondents had an income ranging between Rs.100,000 to Rs.200,000 and they accounted for 10.7% of the entire sample. Whereas, 22 participants had an income of more than Rs.200,000 and they constituted 6.7% of the entire representative sample.

TABLE 4.6: Descriptive Statistics

	N	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
ER	328	3.9314	0.49872	0.343	0.135	-0.235	0.268
EK	328	3.8598	0.65638	-0.303	0.135	-0.464	0.268
EC	328	3.9954	0.6198	-0.224	0.135	-0.285	0.268
AGP	328	3.8039	0.72886	-1.118	0.135	2.526	0.268
GCI	328	3.8003	0.58764	-0.222	0.135	0.086	0.268
Valid N (listwise)	328						

The table given above depicts the descriptive statistics such as mean, standard deviation and the values of skewness and kurtosis against each of the constructs. The means or average responses obtained against each of the constructs are greater than 3.50 which depicts that the average response was tilted towards the fourth point (i.e., agree) on the Likert Scale.

4.4 Evaluation of PLS-SEM Results

This part of the chapter pertains the analysis and authentication of the scales and the analysis of the outer and inner model using a PLS-SEM technique. This analysis was carried out through the aid of the Smart PLS statistical package.

4.4.1 Measurement Model

The foremost step in the evaluation of the measurement model pertain to the measurement of the outer model. It pertains to the analysis of the components that

determine the nature of the proposed relationships. There are two main aspects with regard to the measurement of the outer model. These are reliability and validity. The measurement model is assessed on the basis of the following guideline: reliability and internal consistency in between the items which is measured using composite reliability (CR); average variance extracted (AVE) is then used to measure convergent validity and lastly the presence of discriminant validity is assessed using the Fornell-Larcker criterion.

4.4.2 Cronbach Alpha

The Cronbach Alpha is a measure and representation of the internal consistency.

TABLE 4.7: Cronbach's Alpha Values

Variables	Cronbach's Alpha Values
Environmental Responsibility	0.735
Environmental Knowledge	0.798
Environmental Concern	0.777
Green Product Availability	0.728
Green Consumption Intention	0.734

Internal consistency in between the items of the instruments that were used for the purpose of collecting data. The minimum threshold value for Cronbach's Alpha is 0.70 (Santos, 1999).

4.4.3 Composite Reliability

The composite reliability (CR) unlike Cronbach's Alpha does not allow for an equal indicator loading of a construct. The values of CR lie between 0 and 1 and the desirable CR values should be greater than 0.60. A CR value ranging between

0.60 and 0.70 is considered as average degree of internal consistency while a CR value ranging between 0.70 and 0.90 is regarded as more acceptable and adequate.

TABLE 4.8: Composite Reliability (CR)

Variables	Composite Reliability (CR)
Environmental Responsibility	0.838
Environmental Knowledge	0.881
Environmental Concern	0.853
Green Product Availability	0.847
Green Consumption Intention	0.814

The table given above depicts the variables along with their composite reliabilities. It can be observed that all CR values fall with the desirable threshold range of 0.70 to 0.90. This suggests that the measurement model of this study is highly reliable.

4.4.4 Average Variance Extracted (AVE)

Once the reliability of the instruments is confirmed, the next logical step is to measure convergent validity. Convergent validity assesses the degree to which constructs have a theoretical relation with each other. AVE is used in order to measure the degree of convergence amongst the constructs. The acceptable threshold value for AVE is 0.50 and above.

TABLE 4.9: Average Variance Extracted (AVE)

Variables	Average Variance Extracted (AVE)
Environmental Responsibility	0.576
Environmental Knowledge	0.714
Environmental Concern	0.595
Green Product Availability	0.651
Green Consumption Intention	0.525

The table given above depicts that all values of AVE surpass the minimum threshold value of AVE. The range of AVE values is between 0.525 and 0.714. Hence, the presence of convergent validity has been confirmed.

4.4.5 Discriminant Validity

Discriminant validity pertains to the degree to which one construct is different and unique from another construct. The most widely used approach in assessing discriminant validity is the Fornell-Larcker criterion.

TABLE 4.10: Discriminant Validity

Variables	EC	EK	ER	GPA	GCI
EC	**0.771**				
EK	0.396	**0.845**			
ER	0.579	0.46	**0.759**		
GPA	0.465	0.288	0.314	**0.807**	
GCI	0.456	0.305	0.551	0.258	**0.725**

Note: EC = Environmental Concern; EK = Environmental Knowledge; ER = Environmental Responsibility; GPA = Green Product Availability; GCI = Green Consumption Intention

When the square root of the AVE obtained against each construct is higher the construct's highest correlation with another latent construct, it is said that the discriminant validity has been confirmed. The table given above depicts the results of the Fornell-Larcker method that was used to measure discriminant validity.

It can be seen that the square root of the AVE of a construct depicted in bold is higher than its highest correlation with another construct. Hence it can be ascertained that discriminant validity has been established.

Table 4.11: Factor Loading

ITEMS	ER	EK	EC	GPA	GCI
ER1	0.765				
ER2	0.87				
ER3	0.481				
ER4	0.867				
EK1		0.747			
EK2		0.918			
EK3		0.861			
EC1			0.757		
EC2			0.614		
EC3			0.88		
EC4			0.87		
GPA1				0.762	
GPA2				0.915	
GPA3				0.732	
GCI1					0.647
GCI2					0.819
GCI3					0.673
GCI4					0.747

The table given above depicts the individual factor loading of each item that was include in the measurement scale. According to LambertWildt and Durand (1991) multiple items are used to measure a variable and the factor loading are a depiction of the contribution of each individual item. The threshold values have been classified into three main categories (Shevlin and Miles, 1998). The loadings of less than 0.30 are considered to be low and loading of 0.50 are considered satisfactory. Whereas, the loading of greater than 0.70 are considered as high and favorable. In this case, all factor loadings were greater than 0.60 and thus were considered to be acceptable.

All values of outer loading exceeded the minimum threshold value of 0.50 which depicts the satisfactory contribution made by the indicators to the constructs of the study. Discriminant validity can be observed by looking at the outer loading of the indicators. If an indicator's outer loading is higher than all its cross-loading with other constructs, discriminant validity is said to have been established. The tale above indicates that all loading were greater than 0.50 and no indicator had a loading of more than what it was intended to measure. Hence, it can be deduced

that discriminant validity was not a problem in this study (Urbach & Ahlemann, 2010).

4.5 Examination of the Structural Model

Once the examination of the outer/measurement model has been completed, the next step is to examine and analyze the structural model. An organized assessment of the structural model was carried out and the direct relationships between the variables were examined first. The size of the coefficients and p-values were observed using PLS-SEM bootstrapping technique.

The bootstrapping resampling technique was utilized using the 95% bias-corrected and bootstrap confidence intervals (BCa) with 328 sub samples to examine the impact of two exogenous variables (ER and EK) on the endogenous variable (GCI), green consumption intention in order to determine the standard error estimates and the path coefficients through t-tests. The figures below depict a diagrammatic representation of the SEM-PLS algorithmic and bootstrapping direct relationships models.
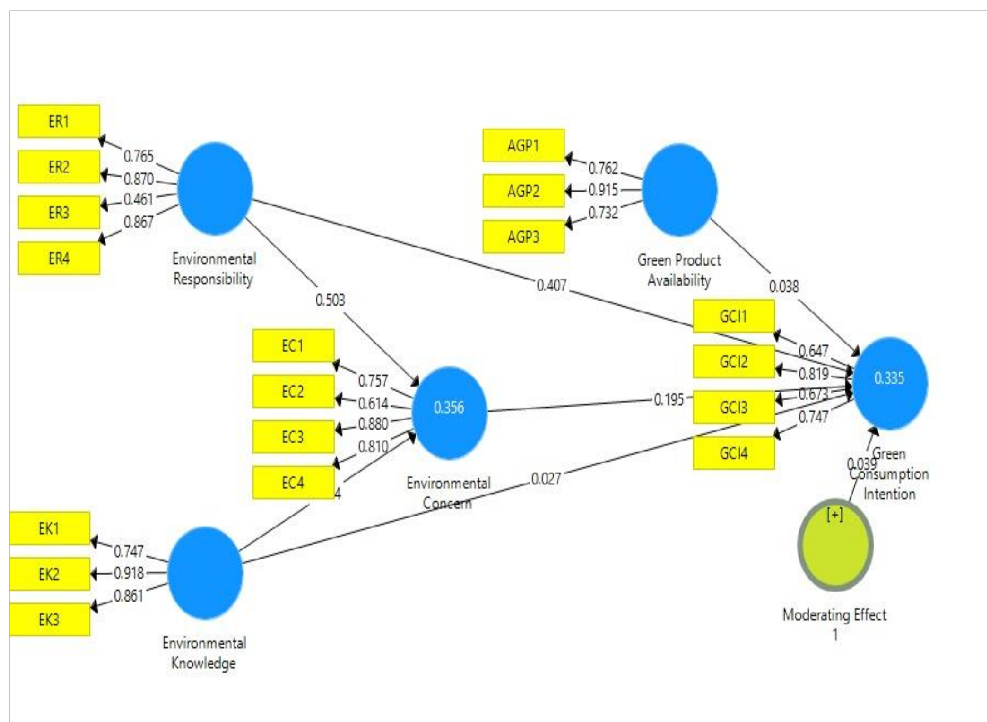

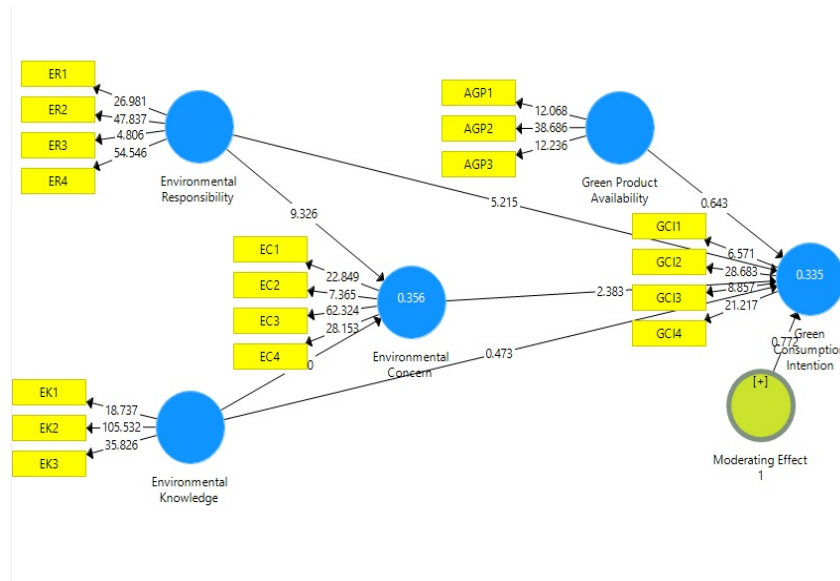FIGURE 4.4: PLS-SEM Algorithms Direct Relationships

FIGURE 4.5: PLS-SEM Bootstrapping Direct Relationships

TABLE 4.12: Direct Relationships

Hypothesis/Path	Original Sample (O)	Standard Deviation (STDEV)	T-Statistics (O/STDEV)	P-values	Decision
H1 ER -> GCI	0.407	0.083	4.921	0.000	Accepted
H2 ER -> EC	0.503	0.055	9.221	0.000	Accepted
H3 EK -> GCI	0.027	0.058	0.459	0.323	Rejected
H4 EK -> EC	0.164	0.05	3.264	0.001	Accepted
H5 EC -> GCI	0.195	0.087	2.254	0.012	Accepted

The results of the direct relationships on the basis of the PLS-SEM bootstrapping and algorithm technique have been shown in the table given above. After a thorough review of the inner model path coefficients the outer model can be assessed by checking the values of t-statistics in the outer loadings (i.e., means, standard deviations, t-values). The table given above depicts that all the value of t-statistics are greater than the acceptable threshold of 1.96. Hence, it can be deduced that all the outer model loading are highly significant in nature. After reviewing the path coefficient for the inner model, we can explore the outer model by checking the T-statistic in the "Outer Loadings (Means, STDEV, T-Values)" window. As presented in table 8, all of the T-Statistics are larger than 1.96 so we can say that the outer model loadings are highly significant.

After reviewing the path coefficient for the inner model, we can explore the outer model by checking the T-statistic in the "Outer Loadings (Means, STDEV, T-Values)" window. As presented in table 8, all of the T-Statistics are larger than 1.96 so we can say that the outer model loadings are highly significant. After reviewing the path coefficient for the inner model, we can explore the outer model by checking the T-statistic in the "Outer Loadings (Means, STDEV, T-Values)" window. As presented in table 8, all of the T-Statistics are larger than 1.96 so we can say that the outer model loadings are highly significance. The results indicate the first hypothesis **H1** is accepted which means there is a positive relationship between ER and GCI as indicated by (t = 4.921; p = 0.000). The second hypothesis **H2** also stands accepted as indicated by (t = 9.221; p = 0.000). It means that a positive relationship exists between ER and EC. The third hypothesis **H3** has been rejected (t = 0.459; p = 0.323) which means that EK does not have a significant and positive impact on GCI. The fourth hypothesis **H4** is validated as indicated by (t = 3.264; p = 0.001) which ascertain the presence of a positive relationship between EK and EC. The fifth hypothesis **H5** also stands accepted (t= 2.254; p = 0.012) on the basis which it can be deduced that there is a positive relationship between EC and GCI.

4.6   Mediation Analysis (Indirect Model)

The mediation analysis is carried in order to assess whether the relationship between two constructs is explained through a third construct. In this study the mediating role of environmental concern (EC) in the relationship between environmental responsibility (ER) and environmental knowledge (EK) and green consumption intention has been analyzed. For the purpose of this study the bootstrapping technique has been used. In this technique, an experiential representation of the sample distribution of indirect effects is generated through the use of bootstrapping. The bootstrapping technique has been preferred by many authors over other techniques such as causal steps approach, coefficient method, and the Sobel test (Santos, 1999).

TABLE 4.13: Mediation Analysis

Hypothesis/Path	Original Sample (O)	Standard Deviation (STDEV)	T-Statistics (O/STDEV)	P-values	Decision
H6 ER ->EC -> GCI	0.098	0.044	2.244	0.013	Accepted
H7 EK->EC-> GCI	0.032	0.018	1.818	0.035	Accepted

The table given above depicts the results of the mediation analysis. The sixth hypothesis **H6** has been accepted (t = 2.244; p = 0.013) which indicates that EC mediates between ER and GCI. Moreover, the seventh hypothesis H**7** has also been validated as indicated by (t = 1.818; p = 0.035) on the basis of which it can be ascertained that EC also mediates the relationship between EK and GCI.

4.7 Moderation Test

The moderation test was conducted to assess the moderating role of green product availability (GPA) in the relationship between environmental concern and green consumption intention. The interaction term is used to determine the moderating effect. If the interaction term come out to be significant then the presence of a moderating effect is established.

TABLE 4.14: Moderation Test

Hypothesis/Path	Original Sample (O)	Standard Deviation (STDEV)	T-Statistics (O/STDEV)	P-values	Decision
H8 GPA*EC -> GCI	0.039	0.049	0.808	0.21	Rejected

The table given above depicts the results of the moderating effect of green product availability (GPA) in the relationship between environmental concern and green consumption intention. The eight hypothesis H8 has been rejected (t = 0.808; p = 0.210) which indicated that GPA does not moderate the relationship between EC and GCI.

4.8   Summary

The statistical analysis of the data that was obtained from the consumers of green products was presented in this section. A detailed analysis of the data was carried out using PLS-SEM technique. Under this approach an analysis of the measurement and structural model was carried out. On the basis of the results of the data analysis it can deduced that environmental responsibility has a significant positive relationship with green consumption intention. Environmental knowledge does not have a significant effect on green consumption intention. Environmental responsibility and knowledge have a positive effect on environmental concern. Environmental concern mediates the relationship between environmental responsibility, knowledge and green consumption intention. However, green product availability does not moderate the relationship between environmental concern and green consumption intention.

Chapter 5

Discussion and Conclusion

5.1 Discussion

The underlying aim of this study was to examine the direct impacts of environmental responsibility and environmental knowledge on green consumption intention. Moreover, the indirect impacts of these variables through the mediating role of environmental concern were also analyzed. In addition to this, the moderating role of green product availability in the relationship between environmental concern and green consumption intention was also checked. A total of eight hypotheses were developed in light of the findings mentioned in the existing body of literature. These hypotheses were observed through the lens of the theory of planned behavior (TBP). This section presents a thorough discussion on these hypotheses in light with the existing studies.

The first hypothesis **H1** stated that a positive relationship existed between environmental responsibility (ER) and green consumption intention. The results of this study were supportive of this hypothesis. The presence of a positive relationship means that with the increase in the ER of the consumers, the tendency to develop green consumption intentions will also increase. This finding is in complete harmony with the findings of prior studies. For instance, Attaran and Celik (2015) undertook a study to evaluate the impact of environmental knowledge on green consumption behavior.

The results revealed that environmentally responsible individuals exhibited greater tendencies to develop green consumption intentions which in turn led them to depict green consumption behavior such as purchasing eco-friendly products. Similarly, Xu et al. (2020) also initiated a study to examine the relationship between ER and green consumption intention amongst Chinese consumers. The results of the study indicated that an increase in environmental responsibility led to a significant increase in the development of green consumption intentions.

The second hypothesis **H2** stated a positive relationship between environmental responsibility (ER) and environmental concern (EC). The results were in support of this hypothesis. This means that a positive relationship exists between environmental responsibility (ER) and environmental concern. Hence, it can be deduced that an increase in ER of the individuals will lead to a significant increase in the development of environmental concern. This finding is in line with the findings of previous studies.

For instance, Chuang and Huang (2018) in their study on Chinese consumers observed that the individuals who possessed a high level of ER demonstrated increase interest in the environmental issues and showed increased concern with regards to the problems caused by these environmental issues. Furthermore, Sadachar et al. (2016) in their study also revealed that the individuals with a greater sense of ER were more concerned, driven and motivated to resolve environmental issues. Hence, it can be deduced that environmental responsibility is a key pre cursor of environmental concern.

The third hypothesis **H3** posited a positive relationship between environmental knowledge (EK) and green consumption intention. This hypothesis was rejected as the result indicated no direct relationship between environmental knowledge and green consumption intention. This indicates that an increase in environmental knowledge does not lead to a significant and noticeable change in green consumption intentions. This finding is in contrast with the findings of Chuang and Huang (2018) who posited that the individuals with higher levels of EK depicted pro-environmental attitudes which in turn drove them to indulge in green consumption behavior.

However, this finding supports the research of Tadajewski and Tsukamoto (2006) who posited that there was no significant relationship between environmental knowledge and the green consumption intentions of the FMCG consumers in UK and Germany. This can mainly be attributed to the fact that the organizations are still lacking in effectively communicating the importance of buying and consuming eco-friendly products. There is an absence of efforts by the organization in terms of developing an integrated approach to address the problems that persist in the environment. There is a dire need to adopt radical measures in terms of educating the consumers that the environmental problems can be mitigated by adopting green consumption patterns.

The fourth hypothesis **H4** proposed a positive relationship between environmental knowledge and environmental concern (EC). The results of the study supported this hypothesis. It means that a positive relationship exists between EK and EC. In other terms, it can be said that an increase in the environmental knowledge of the consumers will lead to a significant increase in the development of green consumption intentions of the consumers. This finding is in complete harmony with the findings of previous studies.

For instance, Unal et al. (2018) in their study observed that the individuals will a greater level of environmental knowledge demonstrated increased concern towards their surrounding environment and environmental issues. Furthermore, Suki (2016) also observed that EK of the consumers was a major driving force that drove the consumers to demonstrate an increased concern towards the environment. Hence, it can be deduced that EK is a major antecedent of environmental concern.

The fifth hypothesis **H5** stated that there is a positive relationship between environmental concern (EC) and green consumption intention. The results were supportive of this hypothesis. It means that EC and green consumption intention are positively related with each other. In other terms, an increase in EC of the consumers will lead to a significant and noticeable increase in the development of green consumption intentions. This finding supports the results of prior studies conducted in similar but different cultural contexts. For instance, Suki (2016)

posited that the individuals who are more concerned about their environment tend to develop pro-environmental attitudes which in turn drive them to develop green consumption intentions. Moreover, Xu et al. (2020) in their study on Chinese FMCG consumers contested that an increase in EC led the consumers to engage in pro-environmental behaviors such as buying green and eco-friendly products.

The sixth hypothesis **H6** proposed that environmental concern plays a mediating role in the relationship between environmental responsibility and green consumption intention. On the other hand, the seventh hypothesis H7 proposed that environmental concern mediates the relationship between environmental knowledge and green consumption intention. The results confirmed the indirect effects of ER and EK on green consumption intention through EC. It means the EC mediates the relationship between EC, EK and green consumption intention.

This finding is in harmony with the findings of previous studies that have also confirmed the mediating role of environmental concern in similar contexts. For instance, Young et al. (2010) observed that environmental responsibility and environmental awareness passed through environmental concern before influencing green consumption behavior of an individual. Hence it can be ascertained that EC is an important construct that aids in explaining the indirect effects of environmental constructs onto green consumption behavior.

The eight hypothesis **H8** stated that green product availability moderates the relationship between environmental concern and green consumption intention. The results rejected this hypothesis. It means the green product availability does not moderate the relationship between EC and green consumption intention. In other terms, green product availability does not strengthen or weaken the relationship between EC and green consumption intention. This finding supports the research of Zakowska-Biemans (2011) which posits that the availability of green product does not have any significant influence on an individual's tendency to engage in green consumption behavior. The reason behind the rejection of this hypothesis can mainly be attributed with the fact that green products come with a premium price tag as a result of which the consumers lose their motivation to buy these products. On the other hand, another reason might be the limited availability of

these products due to which the consumers find it hard to locate them and lose interest in the process. Another reason can be the eco-labelling and packaging of these products. The packaging of these products is done using environmentally friendly materials which might present a dull look as compared to other conventional products that have more attractive packaging (Zakowska-Biemans, 2011).

5.2   Theoretical Contributions

The findings of the present study extend the body of knowledge on green consumption behavior in three important ways. Firstly, the present study reinforces the literature on the relationship between environmental responsibility, environmental knowledge and green consumption intention from the perspective of the individual consumers. The study also makes a valuable contribution to an emerging stream of research that examine the aforementioned relationships in the Pakistani context. Although there is a plethora of literature that is available which focuses on the relationship between environmental responsibility and knowledge and green consumption intention but most of it examines this relationship through the lens of corporate environmental responsibility (CER). Studies pertaining to consumer environmental responsibility and knowledge are scarce especially in the Pakistani context.

Secondly, this study perpetrates an important mechanism and theoretical framework that can be utilized to examine and explain the positive influence of environmental responsibility and knowledge on green consumption intention. Moreover, this study reveals that environmental concern is an important precursor and bridge that helps foster the development of green consumption intentions. The results of this study have been consistent with the findings of previous researches which indicate that environmental concern is an important mediating variable in the relationship between ER, EK and green consumption intention.

Thirdly, this study makes a valuable contribution to the existing literature by examining the moderating role of green product availability in the relationship between environmental concern and green consumption intention. The results

indicate that green product availability does not moderate green consumption intention. This finding is consistent with several findings that have also unearthed the insignificant role of green product availability in green consumption behavior. However, some existing studies regard green product availability as an important antecedent that plays a critical role towards the development of green consumption intentions.

5.3   Managerial Implications

This study also encompasses some important implications for managers and policy makers. The results of the study indicate a positive relationship between environmental responsibility, environmental concern and green consumption intention. In order to boost and foster green consumption behavior, it is imperative for the policy makers to introduce environmental education into the curriculum in order to cultivate environmental awareness which would turn be translated into environmental values and green consumption behavior. Moreover, the policy makers can also take steps to enhance individual environmental responsibility and concern through the aid of various mass communication channels aimed at promoting environmental education. These communication channels may include newspapers, media, TV, social media etc.

The findings of this study also serve as a case for the managers to develop and integrate a green marketing strategy into their marketing efforts that is aimed at inculcating environmental awareness and values amongst the mass audience. For instance, the organizations should highlight the importance of being environmentally responsible by altering consumption patterns in order to preserve and protect the surrounding environment. Moreover, it becomes binding upon the policy makers to enact laws and regulations that coerce the organizations to develop frameworks aimed at promoting environmental education and awareness amongst the people so that they may alter their consumption behaviors by purchasing eco-friendly products.

5.4 Limitations and Directions for Future Studies

There are certain limitations associated with this study. Firstly, the results of this study cannot be generalized. The relationships were tested on a small sample size and the scope was limited to a certain geographical territory i.e., Rawalpindi and Islamabad. Therefore, it is necessary to confirm generalizability by broadening the scope this study. This can be achieved by increasing the sample size and incorporating more respondents into the study. Secondly, the current study only studied the mediating and moderating roles of environmental concerns and green product availability. Future studies should incorporate other moderating and mechanism with the existing theoretical framework by introducing other variables such as: price sensitivity, convenience level, policy intervention, gender and income levels. Introducing new constructs will significantly enhance the understanding of the antecedents of green consumption intention.

5.5 Conclusion

The increased pace of globalization and consumerism has resulted in serious ramifications for the environment. The increased competition, industrialization, and proliferation of products and services has resulted in the emergence of various environmental issues that causing detrimental effects on the environment. This paradigm shift has also made information easily available and accessible to the consumers. As a result, the consumers are now more aware regarding their surrounding environment. Studies have indicated that the consumers possess high levels on awareness and knowledge and depict an increased tendency to exert efforts towards the preservation and protection of their environment. These empowered consumers show increased willingness to alter their consumption behaviors by adopting green values that are aimed at purchasing and consuming products that have a lower carbon footprint, are renewable and eco-friendly. This study was aimed at testing the aforementioned analysis and the results confirmed that the

environmental responsibility and environmental concern are major pre cursors and antecedents of green consumption intention. Therefore, it become imperative for the policy makers, organizations and individuals to exert a collective effort that is aimed at acquiring and adopting pro-environmental values and knowledge in order develop concern towards the environment and to engage in altering consumption patterns to promote green consumption behavior.

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Appendix A

CAPITAL UNIVERSITY OF SCIENCE AND TECHNOLOGY, ISLAMABAD

Department of Management Sciences

Questionnaire

Dear Participant,

You are being requested to participate in a research study on the topic "**Impact of Environmental Responsibility and Environmental Knowledge on Green Consumption Intention: A Moderated-Mediation Analysis**". If you agree to be in this study, I request you to complete this survey to the best of your knowledge. You can be rest assured that the answers provided by you will be kept confidential and will not be used for any other purpose.

Thanks a lot for your help and support!

Sincerely,

Shiza Sikandar

MS Research Student

Faculty of Management and Social Sciences

Capital University of Science and Technology,

Islamabad

1. **Gender**

   Male ☐   Female ☐

2. **Age (years)**

   20 - 30 ☐   31 − 40 ☐   41 − 50 ☐   51 − 60 ☐   Above 60 ☐

3. **Education**

   High School/College ☐   Undergraduate ☐   Post-Graduate ☐

4. **Income**

   Below Rs.50,000 ☐   Rs.50,000 − Rs.100,000 ☐   Rs.100,000 − Rs.200,000 ☐

   Above Rs.200,000 ☐

Kindly give your responses using following scale:

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

Environmental Responsibility		1	2	3	4	5
	Items	**1**	**2**	**3**	**4**	**5**
1	My actions impact the health of the environment					
2	I have the power to protect the environment					
3	I can learn how to improve the environment					
4	I will work to make my surrounding environment a better place.					
Environmental Knowledge						
	Items	**1**	2	3	4	5
5	I can tell if the products I bought are good for the environment					
6	I know more about recycling than other ordinary people					
7	I thoroughly know about environmental issues					

Environmental Concern		1	2	3	4	5
	Items	**1**	**2**	**3**	**4**	**5**
8	Environment is severely abused by humans					
9	Uncontrolled expansion of the industrialized society must be checked					
10	We must maintain the balance of nature for our survival					
11	The balance of nature is very delicate and easily upset					
Availability of Green Products						
	Items	**1**	**2**	**3**	**4**	**5**
12	I actually do not know where green products are sold					
13	Green products are not sold at stores close to where I live.					
14	I cannot easily find green products unless I look for them carefully.					
Green Consumption Intention						
	Items	**1**	**2**	**3**	**4**	**5**
15	I intend to collect and learn more about environmentally friendly products					
16	I intend to recommend environmentally friendly products to my relatives and friends					
17	I intend to introduce and recommend environmentally friendly Products to my family					
18	I will buy environmentally friendly products if I need them					

Thank you for your time and consideration