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The Impact of Frugality on Green Purchase Behavior: A Mediation Moderation Model

by

Shabnam Bibi

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I want to dedicate this achievement my parents, teachers and friends who always encourage and support me in every crucial time

CERTIFICATE OF APPROVAL

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Registration No: (MMS 193020)

THESIS EXAMINING COMMITTEE

S. No.	Examiner	Name	Organization
(a)	External Examiner	Dr. Muhammad Sheeraz	AU, Islamabad
(b)	Internal Examiner	Dr. Ahsan Mahmood Ahmed	CUST, Islamabad
(c)	Supervisor	Dr. Lakhi Muhammad	CUST, Islamabad

Dr. Lakhi Muhammad
Thesis Supervisor
April, 2022

Dr. Lakhi Muhammad
Head
Dept. of Management Sciences
April, 2022

Dr. Arshad Hassan
Dean
Faculty of Management & Social Sciences
April, 2022

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Abstract

This study was aimed at investigating and examining the impact of frugality on green purchase behavior with the mediating role of green value and the moderating role of green concern in the relationship between green value and green purchase behavior. The aim of the study was to investigate the antecedents and predictors of green purchase behavior has greatly advanced in the last few years. However, there have been limited inquiries that have been initiated to examine and investigate the relationship between frugality and green purchase behavior and the manner in which this relationship is explained through the constructs of green value and green concern. This study aimed to fulfill this gap by empirically investigating the proposed relationships in order to broaden the understanding of the factors that influence green purchase behavior.

A survey was conducted to collect data from 316 Pakistani consumers of various green cosmetic and personal care products. A structural equation modelling technique was used to examine and assess the validity of the proposed hypotheses. The results revealed that frugality had a positive and significant impact on green purchase behavior. Frugality was also observed to have a positive relationship with green value. Moreover, green value had a positive impact on green purchase behavior. Green value was also observed to be partially mediating the relationship between frugality and green purchase behavior. Furthermore, it was revealed that green concern does not moderate the relationship between green value and green purchase behavior. On the basis of the findings of this study, some important theoretical and practical implications along with limitation and future study direction have been discussed towards the end of this study.

Keywords: Frugality, Green Value, Green Concern, Green Purchase Behavior.

Contents

List of Figures

List of Tables

Abbreviations

AVE	Average Variance Extracted
CR	Composite Reliability
F	Frugality
GC	Green Concern
GPB	Green Purchase Behaviour
GV	Green Value
PLS	Partial Least Squares
SEM	Structured Equation Modelling
STDEV	Standard Deviation

Chapter 1

Introduction

1.1 Background of the Study

The abundance of materialistic life and the robust pace of economic development has significantly boosted the pace of consumerism which is characterized by the growing preoccupation of consumers to acquire various consumer goods and services (Wang et al., 2021). Consequently, the environmental problems that arise due to the rapid development of society have harmed the surrounding environment (Soomro et al., 2020). These rapid and spontaneous changes in the environment have led to an exponential increase in climatic problems. For instance, air pollution, deforestation, global warming, industrial pollution, and increased energy consumption have led to a significant increase in global pollution levels which in turn in harming the surrounding environment (Naz et al., 2020). Some key statistics and studies also point towards the fact that these climatic problems are harming the overall human capital development.

According to Zheng et al. (2021), the increased consumption patterns, personal values, and lifestyles are the major causes that have led to an increase in environmental problems. Therefore, in light of these growing environmental and climatic issues, there have been increased calls from various segments of the society and consumer groups to adopt such consumption patterns that are characterized by resource-saving, avoiding wasteful spending, and adopting an economic approach

with regards to the purchase of goods and services (Han, 2020). Hence, the term "frugality" in consumer behavior was coined (Wang et al., 2021).

Frugality has been termed as a value and lifestyle that has presently garnered increased attention and interest from all segments of society including individual consumers, organizations, researchers, and academicians (Quoquab et al., 2020). According to many researchers, frugality is expected to have a positive and significant impact on consumer behavioral patterns (Suki & Suki, 2019). According to Wang et al. (2021), frugality has been termed as a critical factor that can play a major and constructive role in shaping consumer perceptions such as increasing their concern for the environment (green concern) and inculcating resource-saving values and beliefs (green value) which would, in turn, drive them to adopt sustainable consumption patterns. The consumption values and lifestyle associated with frugality are not only related to sustainable development but are also related to environmental protection (Quoquab et al., 2020). The research on frugality has mainly focused on consumer perception, behavioral patterns, and its antecedents (Sheng et al., 2019). Moreover, other studies have established the fact that frugal consumers are more inclined to exhibit resource-saving and eco-friendly behaviors which signify the fact that frugality may have a positive association with green and sustainable purchase behavior (Juvan & Dolnicar, 2017).

In the domain of green consumption, there is an ample opportunity for the consumers to play their role in preventing and mitigating environmental problems (Ye et al., 2018). According to Juvan and Dolnicar (2017), purchasing eco-friendly products is one effective way of doing that. Moreover, Wang et al. (2021) propose that by adopting a resource-saving and frugal buying approach the consumers can play a significant role in mitigating the adverse impact of climate change on their surrounding environment. One way of achieving this can be to purchase those products that are eco-friendly and have a minimal carbon footprint to reduce their impact on the environment (Sheng et al., 2019).

Moreover, frugal consumer behavior has been labeled as a significant and positive shift in the consumer mindset that eschews from excessive spending and consumption to a more economical, resource-saving, and frugal approach that encompasses

the inculcation of green values and increased concern for the surrounding environment (Soomro et al., 2020). On the other hand, it has also been seen that the price of green and eco-friendly products is comparatively higher than the traditional products and frugal consumers are known to be price-conscious which can be a major obstacle that can prevent them from buying and consuming green products (Wang et al., 2021). Therefore, it becomes imperative for the researchers to address two main underlying concerns about frugality. Firstly, it is important to observe whether consumer frugality will positively affect the willingness of the consumers to engage in green purchase behavior, and secondly, how does the frugality-green purchase behavior mechanism work?

Another major area that needs considerable attention is how frugality may foster green purchase behavior in the context of developing nations such as Pakistan (Soomro et al, 2020). In the context of Asian nations such as China, there have been a few studies that have observed the antecedents of green purchase behavior, but there is a dearth of knowledge when it comes to understanding and determining the various antecedents and predictors of green purchase behavior in the context of nations such as Pakistan and India (Soomro et al., 2020; Jaiswal & Kant, 2018). Therefore, the present study is an attempt to empirically investigate the impact of frugality on the green purchase behavior of Pakistani consumers. Moreover, the present study intends to develop a comprehensive framework that can be used to understand how frugality acts as an antecedent and predictor of green purchase behavior.

1.2 Gap Analysis

Although there have been many studies that have been undertaken to investigate the factors and antecedents that influence an individual's green purchase behavior, there is still a dearth of knowledge and scarcity of literature with regards to the relationship between frugality and green consumption (Wang et al., 2021). According to Soomro et al. (2020), it remains to be seen whether or not a frugal lifestyle drives the consumers to alter their consumption patterns and whether or not it induces them to purchase eco-friendly products.

The current body of knowledge about the relationship between frugality and the willingness to adopt a green consumption lifestyle lacks empirical evidence and calls for further inquiry and investigation (Wang et al., 2021). Moreover, the present research has mostly focused on examining the direct relationship between frugality and green purchase behavior, and the indirect effect of frugality on green purchase behavior in the presence of mediated and moderated mechanisms has been neglected (Zheng et al., 2021). Furthermore, the existing studies on the factors influencing green purchase behavior have mainly focused on the part played by organizations in shaping consumer purchase patterns and very few inquiries have been initiated to investigate the influence of individual factors such as frugality on green purchase behavior (Sheng et al., 2019).

Moreover, many researchers have observed the increased tendency of consumers in developing nations towards the adoption and use of green and eco-friendly products (Hameed et al., 2019). This can be evidenced from the fact that studies carried out on Chinese, Indian and Malaysian consumers depict that the consumers are more prone to buy green products as compared to the traditional ones but very fewer studies have been undertaken in the context of a developing nation such as Pakistan to validate this claim (Hameed et al., 2019). Wang et al. (2021) in their study on Chinese consumers of cosmetic products investigated the impact of frugality on green purchase intention through the mediating mechanism of motivation to save. The authors observed a significantly strong relationship between frugality and green purchase intention and they recommended further replication of the study in other contexts by introducing new mediating and moderating mechanisms such as green value and green concern. Therefore, the current study aims to fulfill this gap by investigating the relationship between frugality and green purchase behavior through the mediating role of green value and the moderating role of green concern.

1.3 Problem Statement

The robust pace of consumerism and the proliferation of various products and services has harmed the environment leading to various environmental problems

such as excessive use of resources, pollution, and global warming (Yue et al., 2020). This rapid pace of environmental degradation has led to increased calls for altering consumption patterns and adopting a sustainable, efficient, resource-saving, and economical approach when it comes to purchasing and consuming various goods and services.

The present studies have examined the various antecedents and predictors of green purchase behavior but there is still scanty knowledge available about how frugality and individual green values influence a consumer's decision to purchase green and eco-friendly products (Soomro et al., 2020). Moreover, it also remains to be seen whether or not green concern plays a significant role in influencing an individual to adopt green consumption behavior. It can be ascertained that the various signals obtained from the surrounding environment such as excessive depletion of resources and environmental degradation will induce the consumers to adopt a frugal approach and develop green values which would, in turn, influence them to adopt green purchase behavior. Therefore, the present study aims to develop and present a comprehensive framework by inculcating the signaling theory to achieve a broader understanding regarding how frugality and individual green values act as antecedents and predictors of green purchase behavior.

1.4 Research Questions

The aim of this study is to address the following research questions:

1. How does frugality impact green purchase behavior?
2. What is the relationship between frugality and green value?
3. How does green value impact green purchase behavior?
4. Does green value mediate the relationship between frugality and green purchase behavior?
5. Does green concern moderate the relationship between green value and green purchase behavior?

1.5 Research Objectives

This study aims to achieve the following research objectives:

1. To investigate the relationship between frugality and green purchase behavior.
2. To determine the relationship between frugality and green value.
3. To assess the relationship between green value and green purchase behavior.
4. To determine whether or not green value mediates the relationship between frugality and green purchase behavior.
5. To investigate the moderating role of green concern in the relationship between green value and green purchase behavior.

1.6 Significance of the Study

This research will be helpful for different national and multinational firms which are doing their business in Pakistan and it will be helpful for the sellers to target their customers in an effective manner. And will help advertisers; as well as the students of this field in understanding and catering the need of customers in a better and ethical manner respecting the rich culture; as well as to help in understanding the setting and situation in which purchase behavior of green products take place in Pakistan. When an individual has a favorable attitude towards the environment, s/he shows more concern for environmental issues and focuses on eco-social benefits. This may drive her/him to replace non green products with green ones. When consumers know such intentions do better to society, they will make more purchases of green products. (Cheung & To, 2019).

The current study holds immense significance in terms of its theoretical and managerial implications. This study aims to make significant contributions to the emerging stream of literature on green consumption. This study intends to enhance the understanding of green purchase behavior in two important ways.

Firstly, the present study will aid in broadening the current understanding and body of knowledge regarding the association between frugality and green purchase behavior. The current literature mostly focuses on studying green purchase behavior from the perspective of organizations and businesses and little has been done to study the impact of frugality and individual green values on green purchase behavior. Therefore, the current study will enhance the current literature by studying the aforementioned constructs from the standpoint of individual consumers. In addition to this, limited studies are available on green consumption in the context of developing nations. Therefore, the present study will aid in gaining a deeper insight into how frugality affects the green purchase behavior of Pakistani consumers. Moreover, the present study will also aid in expanding the current literature by examining the mediating and moderating role of green value and green concern in the relationship between frugality and green purchase behavior. This study aims to establish the fact that a frugal lifestyle will aid in the development of green values which would, in turn, drive the consumers to exhibit green purchase behavior. Secondly, the present study also encompasses some key practical and managerial implications. This study aims to generate empirical evidence through a rigorous investigation of the relation between frugality and green purchase behavior that would serve as a case for the organizations and marketing personnel. The policymakers and organizational managers, upon the basis of empirical evidence generated through this study, can initiate efforts that are focused on generating awareness amongst the masses regarding the importance of adopting a frugal and sustainable consumption approach when it comes to purchasing and consuming various products and services. Moreover, this study will also provide direction to the organizations based on which they can execute marketing campaigns that are aimed at inculcating green values amongst their customers.

1.7 Underpinning Theory

The present study aims to analyze the hypotheses mentioned above using the signaling theory. Past studies conducted on green marketing have widely used and acknowledged this theory (Mavlanova et al., 2016). The signaling theory

serves as a framework that helps understand the precursors and antecedents of green consumption behavior among consumers (Zameer et al., 2020).

The signaling theory was developed by Stigler (1961) and it posits that certain signals influence an individual to depict certain behavioral outcomes. The signaling theory further notes that there are two entities involved in the exchange of signals. One is the sender of signals and the other is the receiver of the signals. The signals are information that is received by the individuals i.e., consumers upon the basis of which they depict certain behavioral outcomes. The sender of the signals can be the organizations, government policies, environmental changes, etc.

Moreover, the behavioral outcomes depicted by the consumers are a direct function of the signals that are received from the surrounding environment (Zameer et al., 2020). It means that positive signals such as favorable government policies, waste reduction campaigns, environmental awareness campaigns, etc. will generate positive behavioral outcomes such as environmental consciousness, green consumption, etc. (Mavlanova et al., 2016).

The signaling theory has been widely used by researchers to explain the green purchase and consumption behavior of consumers (Chuah et al., 2020). For instance, Shah et al. (2021) in their study on the impact of green values on green consumption observed that the green values are shaped as a result of the signals obtained by the consumers from their surrounding environment.

These signals may include; environmental awareness campaigns, climatic changes, pollution, global warming, resource depletion, etc. Upon the basis of these signals, the consumers tend to adopt green values that encompass a sense of resource conservation and a reduction in wasteful activities to mitigate the harmful environmental effects. These green values in turn drive consumers to buy and purchase green and eco-friendly products (Shah et al., 2021).

Therefore, in light of the above-mentioned findings, the signaling theory can be used in the context of the current study in a manner that the signals received by the consumers from the surrounding environment such as global warming, environmental pollution, excessive resource consumption, etc. will drive the consumers

to adopt a more frugal approach when it comes to buying products and services. This frugal lifestyle will in turn lead the consumers to purchase and consume those products that possess eco-friendly attributes.

1.8 Operationalization of the Key Constructs

1.8.1 Frugality

Frugality is termed as a unidimensional lifestyle characteristic that refers to the extent to which the consumers depict restraint in acquiring resources and the degree to which they are resourceful and economical in terms of buying goods and services. Frugality was measured using a 06-item instrument through a 5-point Likert scale. The scale for frugality was adopted from Lastovicka et al. (1999).

1.8.2 Green Purchase Behavior

Green purchase behavior can be described as a consumption behavior that involves the individual efforts to minimize the adverse impact of consumption on the surrounding environment at the time of purchasing, consuming, and disposing of goods and services. Green purchase behavior was measured using a 04-item instrument scale that was adopted from Jaiswal and Kant (2018) and it was also measured using a Likert scale.

1.8.3 Green Value

Green value is termed as the overall value that the consumers gain by adopting and using various green goods and services. Green value is usually generated through the environmental, social, financial, functional, and informational benefits that a certain green product or service provides to its consumers. The instrument of green value was adopted from Pahlevi and Suhartanto (2020) and it consisted of 3 items.

1.8.4 Green Concern

The green concern is also known as environmental concern and it is termed as the individual views and opinions on environmental issues and the attitudes that are developed as a consequence of the interaction of individuals with their surrounding environment. The measurement scale of green concern was adopted from Zhang et al. (2018) and it had 04 items.

Chapter 2

Literature Review

2.1 Frugality

Frugality is referred to as a unidimensional trait of consumer lifestyle in which the consumers are resourceful and restrained in buying the goods and services for the attainment of long-term goals (Lastovicka et al., 1999). There are different opinions that scholars hold in understanding the essence of frugality. According to the scholars, there are three aspects of frugality, for example, according to Bearden et al. (2006) and Todd and Lawson (2003) one of the aspects is that frugality has a single value orientation, according to Lastovicka et al. (1999) frugality is a lifestyle characteristic, and according to Egol et al. (2010) frugality is a pattern of behavior. Lastovicka et al. (1999) believed that frugal consumers have three main characteristics. Firstly, the consumers who are frugal spend in a more self-restraint manner and show more concern to obtain long-term benefits. Secondly, the frugal consumers tend to gain maximum utility from their possessions and devise various possibilities to acquire possessions. Thirdly, frugal consumers are not influenced by interpersonal relations as compared to average consumers.

The ongoing problem of environmental pollution and energy crises has encouraged a frugal lifestyle to minimize environmental pollution, save resources/energy, and eliminate the energy crisis. Goldsmith et al. (2014) and Pepper et al. (2009) have studied the antecedents of frugality that have been studied previously such as the study on benefits of frugality for organizations by Asakawa et al. (2019),

the study on the hedonic delights of frugality by Hulme (2019), the study on examining the relationship between consumer behavior and frugality by Pan et al. (2019); Chen et al. (2019); Evers et al. (2018), the study on food security policy and frugality by Bhaduri (2018), the investigation on the innovation of frugality by Hossain (2020), and the study on subjective well-being and frugality by Sung (2017). Moreover, current studies have demonstrated a close relationship between frugality and resource conversation (Liebnam, 2019 and sustainable consumption behavior (Awais et al., 2020).

Frugal consumers have various special consumption habits and characteristics as compared to ordinary or average consumers. For example, while consuming the goods or services, frugal consumers show more concern towards saving money and spending thoughtfully (Tatzel, 2002). Such consumers very tactfully acquire the consumption while spending less money on the items (Evans, 2011). In addition to this, frugal consumers are quite pricing sensitive and affected by the fluctuation in prices as they are more aware of cost performance (Lastovicka et al., 1999). However, green products are more costly as compared to traditional products. But frugal consumers still tend to buy green products at higher prices because they believe that such products will serve them with more benefits in the longer run.

The literature on frugality has shown that this construct is multifaceted and complex. According to Mcdonald et al. (2006) and Shaw and Moraes (2009), frugal lifestyle is an emerging field and the popularity of frugal consumers has been growing rapidly. Mainly, studies have been conducted on frugality with its relationship with price consciousness and value. For example, according to Lastovicka et al. (1999), frugal consumers are greatly influenced by price promotions as consumers perceive such promotions as pocket-friendly. Tatzel (2002) argued that some frugal consumers are regarded as bargain-hunters and they tend to never pay the amount listed for the products. Similarly, Evans (2011) asserted that frugal consumers have the art of acquiring the products or services in a lesser amount, which is one of the characteristics of frugal consumers. Tatzel (2002) regards frugal consumers as money-savers rather than money spenders. Few studies have been conducted to examine the impact of frugality on sustainable consumers. As frugality is an

emerging topic, therefore interesting results will be witnessed by scholars. However, Evans (2011) argued that frugality has both positive and negative impacts on the consumption behavior of the end-users or consumers. This can be due to a lack of studies on understating that frugal consumer maximize the utility of the products and that this must have a positive association with sustainability.

Various external and internal factors influence the frugality of consumers. For instance, Chinese society believes that frugality culture positively affects the lifestyle and living habits of the individuals, therefore, the behavior patterns of the consumers are imperceptibly influenced by frugality (Albinsson et al., 2010). Following the money spent, frugal consumers are quite thoughtful and they try to enhance the utility of their money spent. According to Lastovicka et al. (1999), such consumers are more pricing sensitive and susceptible, and they prefer to choose the options with less price. In addition to this, though frugal consumers pay more attention to less expensive goods or services they also see the benefits associated with the goods (Rose et al., 2010). Frugal consumers enjoy the pleasure of saving money rather than spending.

Several external and internal reasons or motivations are attached with frugality – i.e. why people become frugal. For example, according to Birkner (2013), people become frugal due to economic crises or circumstances that compel them to. Egol et al. (2010) added that the reason behind consumer frugality is general economic downturns, job loss, or other such economic conditions that change the consumption pattern and spending behavior of the consumers. Such reasons for consumer frugality are termed "constrained frugality" because consumers are compelled to change their behavior. Another external reason that enables consumer frugality is living in a culture that encourages frugal behavior which ultimately leads people to live frugally (Albinsson et al., 2010).

Additionally, marketing and social influences also enable people to become frugal in their spending. Such reasons for consumer frugal are termed as "persuaded frugality" because other people persuade or influence an individual to become frugal. The third internal reason behind consumer frugality is the inherited values and personality of the consumer. Such a psychological trait allows the consumer to live frugality. Such reasons for consumer frugal are termed as "frugality" because

there are consumers who voluntarily become frugal and these consumers have a positive attitude.

As explained earlier, various reasons other than environmental factors are present that help to save energy. Like, individuals do save energy to conserve resources and stay consistent with the behavior that encourages frugality or thrift (Gatersleben et al., 2017). Evans (2011) demonstrated in their qualitative research that individuals tend to minimize their environmental impacts due to their frugal behavior. Another qualitative study conducted in East Germany by Albinsson et al. (2010) revealed that frugal consumers are less likely to throw out products with low quality and also avert hyper-consumption as noticed in West Germany.

Howell (2013) and Carrete et al. (2012) asserted that qualitative studies have been conducted in a different context that showed that frugal consumers avert from a high-carbon lifestyle. In harmony with these findings, various researches revealed that materialism and frugality have a negative relationship (Goldsmith & Flynn, 2015). Similarly, Gatersleben et al. (2017) found that frugality and energy saving are positively related to one another. This indicates that frugality in consumers helps to posit positive behavior concerning the environment among consumers.

The results of a recent study undertaken by Gil-Gimenez et al. (2021) to investigate the impact of consumer identities and frugal behavior with the mediation of environmental self-identities revealed that consumer identities such as moral consumer identity and thrifty consumer identity are positively linked with frugal behavior among consumers. The authors concluded that frugal consumption patterns extensively help to engage the consumers and maintain a long-run sustainable frugal behavior. As frugal consumers show restrained behavior while purchasing any goods or products, some of the consumers may also favor this behavior due to environmental concerns. They perceive buying too many products could lead to environmental damage. This has been explored by Kapitain et al. (2021) who revealed in their study that frugal consumers tend to purchase products that do not affect the environment, and they purchase products quite often.

Pro-environmental behavior is influenced by moral motives (Gatersleben et al., 2019). However, environmental concerns or morals are not the only factors that

trigger such behavior. To examine other motives, Gatersleben et al. (2019) investigated some other consumer identities that foster pro-environmental behavior. The identities that were taken into consideration were wasteful, moral, thrifty, and frugal. The authors found that moral and frugal consumer identities have the strongest relationship with pro-environmental behavior among consumers in which those frugal and moral consumers purchase environmental-friendly products.

Moreover, Von-Janda et al. (2020) explained that several companies face the challenge of severe waste problems, resource scarcity, and minimizing or reducing damaging impacts on the environment. The authors added that companies have to come up with strategies to foster price sensitivity among customers. Therefore, the companies must introduce frugal products that are extremely durable and reliable so that frugal consumers can purchase them. This indicates that frugality is deeply linked with environmental problems and introducing such products leads to high purchasing behavior among consumers for frugal products.

The frugality of consumers is affected by various internal and external motivational factors. According to Albinsson et al. (2010), Chinese society believes that frugality culture positively affects the lifestyle and living habits of the individuals, therefore, the behavioral patterns of the consumers are imperceptibly influenced by frugality. Though such consumers are price-sensitive, when it comes to protecting the environment, they spend generously to purchase green products. Similarly, do Paco et al. (2019) also asserted that, though frugal consumers pay more attention to less expensive goods or services they also see the benefits associated with green goods, thus, increasing their green purchase behavior.

A recent study by Sodam et al. (2020) found that frugality in consumers enables them to be prudent in their consumption, low in acquisitiveness and materialism, less wasteful, and long-term oriented; hence, this helps them to enhance their green purchase behavior. Additionally, recent literature has shown a positive association between frugality and green purchase behavior (Barrera-Hernandez et al., 2020). According to Ekardt (2020), frugality is considered a fundamental element of sustainable transition which suggests that frugal consumers tend to purchase green and eco-friendly products.

2.2 Green Purchase Behavior

Green purchase behavior is a construct which is referred to as a purchase behavior which entails the efforts to minimize the negative impacts on the environment due to consumption during buying, using, and disposing of the environmentally friendly products (Pagiaslis & Krontalis, 2014). Scholars have explored the phenomenon that shows the positive relationship between green consumption intention and green purchase behavior, such that, with green consumption intention, the consumers are most likely to exhibit green purchase behavior (Ghali-Zioubi & Toukabri, 2019). The role of green purchase behavior has been extensively researched by various academicians (Tung et al., 2017). The role of this construct has been categorized into three dimensions.

The first dimension of green purchase behavior highlights the differences that exist between the characteristics of green consumers using several segmentation tools of marketing (Diamantopoulos et al., 2013). According to Chekima et al. (2016), the consumers that show green purchase behavior are triggered by various demographic aspects that include family, age, gender, income level, and education. On the contrary, Zhang et al. (2019) explained that several scholars believe that only demographic aspects cannot influence the green purchase behavior among consumers. The second dimension of green purchase behavior highlights the psychological factors that are linked with the green purchase behavior of consumers (Choi et al., 2015). Some of the psychological factors that help to effectively conceptualize the green purchase behavior of consumers are perceived green value, environmental knowledge, and perceived self-identification.

However, this dimension of green purchase behavior lacks the integration of external factors that are likely to influence the green purchase behavior of consumers. The third dimension of green purchase behavior focuses on the decision-making process of consumers indulged in green buying behavior and investigating the cause of purchasing green and eco-friendly products (Maniatis, 2016). The reasons that have been identified include rationalism, behaviorism, and empiricism that help in the decision-making process of consumers to purchase green products. According to the rationalist point of view, green consumers tend to acquire vast knowledge

and information that must be considered in making a rational decision and ultimately purchasing green products (Martinez et al., 2020). However, engaging in a complex information-gathering process and making a rational and logical decision every time while purchasing is not something practical for individuals. The behaviorist viewpoint, on the other hand, argues that individuals/consumers have the necessary skills and knowledge that is necessary for making a green purchase decision and subsequently devising effective strategies (Xu et al., 2020). However, some scholars critique that this school of thought lacks the relationship between higher consumer involvement and green purchase behavior. This indicates that these scholars perceive that consumer involvement in green products has a significant relationship with green purchase behavior.

The empiricist school of thought believes that the green purchase decisions of consumers are based on their emotional factors for green products and the impact of emotional preferences rather than rational factors on purchase decisions (Cerri et al., 2018). Nonetheless, past studies and literature on green purchase behavior consider green purchase behavior as a type of purchase behavior and lack regard to it as a result of environmentally responsible behavior. Additionally, the role of frugality on green purchase behavior is yet to be explored and examined.

The ongoing environmental problems including global warming, climate change, and various types of pollution have maximized environmental awareness among individuals (Xu et al., 2020). Therefore, such problems have enabled the individuals to be responsible and get engaged in behavior that is more pro-environmental. An evident example of such behavior is green purchase behavior (Sarkis, 2011). Explaining this, green purchase behavior is fostered with an increase in environmental awareness which ultimately develops pro-environmental behavior among consumers.

In this regard, Maniatis (2016) stated that consumers' involvement in green purchase behavior is likely due to their pro-environmental attitude as a result such consumers engage in buying environmentally friendly products. This indicates that the involvement of consumers in green products enables them to purchase such products, and this involvement is developed as a result of their pro-environmental

attitude. Various studies have manifested that people are inclined towards adopting, using, and consuming eco-friendly and green products. Observations in this regard have shown a considerable increase in environmental awareness among consumers which enables them to willingly engage in green purchase behavior by acquiring environmentally friendly items. Besides this, organizations are devising strategies to mold the attitudes of the consumers and persuade them to develop green purchase behavior.

This would certainly help to reduce the adverse effects of harmful products on the environment. Also, businesses are putting in efforts to add new belief systems of the consumers by amending their belief system which ultimately helps to trigger pro-environmental behavior and attitude. The development of such behavior and attitude is beneficial for the organizations because these behaviors help to engage the consumers to purchase green and environmentally friendly products.

The concept of green purchase behavior and green purchase intention is quite similar. Green purchase behavior is defined as the purchasing and consumption of products that benefit the environment, could be conserved and recycled, or have high sensitivity with regards to environmental concerns (Mostafa, 2007). On the other hand, green purchase intention is the readiness of an individual to develop a certain behavior of buying green products or services. Mei et al. (2012) researched Malaysian consumers to examine the influence of various factors on purchasing intentions of consumers towards eco-friendly products. The results of the study showed that government initiatives with regards to green products adoption greatly influence the green purchase behavior of the consumers to purchase eco-friendly items. The study also manifested that the green purchase behavior of consumers is not affected by eco-label on the products. Moreover, consumers are quite concerned about the environmental quality and they think that their purchase decisions have a significant influence on the environment. Therefore, they take green purchasing decisions very carefully by indulging in green purchase behavior.

Furthermore, Kautish et al. (2019) conducted a study to examine some factors that link the purchase behavior of individuals towards eco-friendly products with

environmental friendliness. The authors observed from the study that individuals who have intentions to recycle products and are environmentally conscious tend to exhibit green purchase behavior. Numerous studies such as Jaiswal and Kant (2019), Prakash and Pathak (2017), and Kaiser et al. (2005), found that green purchase intention has a strong and positive association with green purchase behavior. A study was initiated by Levine and Strube (2012) to examine the impact of green purchase intention on green purchase behavior among undergraduate students of Washington. The study showed that green purchase intentions significantly and positively impact the green purchase behavior of students, and a favorable attitude towards green products increases the chances of buying eco-friendly products, thus exhibiting green purchase behavior.

Previous studies have highlighted the importance of values, behavioral intentions, and attitudes of consumers toward eco-friendly products in explaining the concept of green purchase behavior (Wheale & Hinton, 2007). Most of the studies have followed two main theoretical approaches i.e. Theory of Planned Behavior developed by Ajzen (1985) and Theory of Reasoned Action developed by Ajzen and Fishbein (1980). The theory of Planned Behavior has been used by various studies to explore the intentions, attitudes, and buying behavior of the consumers with regards to green items (Smith & Paladino, 2010).

Wheale and Hinton (2007) have observed a positive and strong relationship between consumer attitude towards buying green products and buying behavior of consumers. Also, Bamberg (2003) asserted that attitude remains a strong predictor of purchasing behavior in the context of environmental consumerism and most of the studies have shown a positive attitude between these two concepts. This highlights the fact that the attitude and behavioral intentions of the consumers towards green products lead toward a green purchase behavior. Therefore, the author suggested shaping the attitude of the consumer using external and internal factors to develop green purchase behavior among consumers.

Numerous studies have explored the factors that enable consumers to indulge in green purchase behavior. One such study is conducted by Xu et al. (2020) who revealed in their study that green purchase behavior is developed by two main

and important factors i.e. environmental awareness and environmental knowledge. The authors further explained that the awareness and knowledge regarding environmental issues stimulate individuals to develop green purchase behavior. Thus, these two factors foster the purchase of green products. Similarly, Attaran and Celik (2015) investigated a critical factor, i.e., a pro-environmental attitude that enables green purchase behavior among consumers. Pro-environmental attitude is developed once the consumer has awareness and knowledge regarding environmental problems. Another study examined by Wu and Yang (2018) revealed that environmental awareness and green purchase behavior are positively and closely related to one another. According to these authors, environmental awareness is one of the most critical factors that trigger green purchase behavior. Moreover, Chuang and Huang (2018) examined through empirical evidence that environmental consciousness among consumers or individuals is developed by gaining knowledge on environmental problems, and this type of consciousness helps the consumers to be involved in pro-environmental behavior such as green purchase behavior.

2.3 Green Value

Green value is defined as a comprehensive evaluation of the environmental benefits gained by the consumers for the efforts that are put by them (Chen & Change, 2012). The authors further defined this construct as an overall assessment of consumers with regards to the net benefits obtained by purchasing goods or services that are environmentally friendly and have a high level of sustainability. Green value is a significant aspect that helps to understand the consumers (Lien, 2015). According to the definition proposed by Lien (2015), green value is the overall assessment of consumers with regards to environmentally friendly and green products. Green value is regarded as a set of green attributes that are attached to the product to build positive word of mouth and enhance the purchase intention of green products (Diaz-Rainey & Ashton, 2010). This concept plays a significant role in establishing a long-term relationship with the customers and impacting the purchase intention of green products among the consumers (Zhuang et al., 2010).

Product value depends on numerous aspects that determine the properties of the products; therefore, product value is regarded as a subjective concept (Sanchez et al., 2006). According to Suki (2016), green value has been recognized as a major determinant of consumer purchase intention. As the definition of green value states that this concept is the consumer's overall assessment about the green product or service that has been received by the consumers in return for what they have given to purchase green product or service (Zeithaml, 1988), thus the concept of green value is critical for the business marketer and the consumers because it is regarded as an important component related to the on-going business market. Green value focuses on the attitude of individuals towards the general performance and quality of green products (Patterson & Spreng, 1997).

Green value has been divided into two dimensions i.e. utilitarian and hedonic (Sherry, 1990). Utilitarianism focuses on the functional benefits provided by the green product, whereas hedonic focuses on the emotional factor of the consumers with regards to the green product. According to Holbrook and Hirschman (1982) utilitarian value aims to gain high-quality green products or services while regarding purchase behavior as an activity, and therefore, utilitarian value incorporates emotions like fatigue as purchase behavior is an activity for consumers.

According to Babin et al. (1994), customers pursuing utilitarian value feel pleasure while purchasing because such purchases provide quality products or services. On the other hand, Bloch and Richins (1983) stated that customers pursuing hedonic values focus on the fun element, and therefore, their values have a greater element of emotions and entertainment in consumption patterns. Hedonic value predicts and explains the future purchase behavior of consumers more effectively than utilitarian value (Sherry, 1990). The author added that customers generally tend to experience both the values while consuming, however, some customers prefer utilitarian value, while others feel hedonic values to be more important (Bloch & Richins,1983).

The evaluation of green products is conducted based on the performance of green products concerning the environment. Consumer's evaluation of green products explains the perception of green value through word of mouth and consumer green

purchase intentions. According to Eid (2011), a positive relationship exists between green value and green purchase intention. This shows that if products provide higher green value, thus the purchase intention for such products will increase. A study conducted by Dehghanan and Bakhshandeh (2014) found that green value is positively and significantly related to green purchase intention and green trust. This suggests that higher the green value, the purchase intention of green products and green trust among consumers shall also enhance.

The assessment and evaluation of consumers regarding the attributes of green products and the value they provide is a major component of green marketing in enhancing the performance of green products (Blackenberg & Alhusen, 2018; Yu & Lee, 2019). Green value greatly contributes towards the purchase behavior of green and eco-friendly products. The authors, e.g. Kong et al. (2014), Chen and Chan (2012), and Patterson and Spreng (1997) also discussed that green value and environmental attitude of consumers are positively and significantly related to each other. According to Stern (2000), eco-friendliness and pro-environmental behavior of consumers is the result of the green value provided by the products. This suggests that green product value products with higher green value act as a positive indicator in such a way that it enables eco-friendly behavior among consumers. Moreover, Woo and Kim (2019) suggested that organizations play a major role in developing green value for consumers. The organizations that provide higher green value in their products tend to shape the green purchase behavior of the consumers. Islam et al. (2020) also supported this study, as the authors discussed that green value in products or services is provided by the organizations, therefore organizations must produce such products for the consumers for protecting the natural environment.

Exploring green and environmental consumption, Chen and Chang (2012) conducted the study to maximize the purchase intentions of green products applying green product value construct. The authors examined the associations between green product value, green trust, green perceived risk, and green purchase intentions. The study found that green product value is positively related to green purchase intention and green trust. Although past studies regard the research of Chen and Chang (2012) as important in enhancing the green purchase intentions

of consumers, Sangroya and Nayak (2017) stated that this study did not explain the multidimensional and complex nature of green value. Therefore, Sangroya and Nayak (2017) suggested that green product value has a multidimensional nature having four sub-constructs i.e. conditional value, functional value, emotional value, and social value. Several studies, e.g. Masini and Menichetti (2012), Suki (2016), and Sangroya and Nayak (2017) found that green value can be analyzed more systematically using its dimensions. Additionally, Holbrook (2006) asserted that determining the multidimensional construct of green value is important as it helps to examine green value which is quite a complex construct.

A study conducted by Lin et al. (2019) investigated factors that influence the purchase behavior of green energy consumers concerning green product value. The authors focused on studying the multidimensional construct of green product value such as conditional value, functional value, social value, and emotional value. Lin et al. (2019) stated that these values were acquired from the study of Masini and Menichetti (2012), and found that the purchase behavior of green energy consumption is driven by factors such as psychological value, utilitarian value, and social values/benefits. Moreover, Jabeen et al. (2021) examined the role of green value in the willingness of consumers to purchase green products. The study found that consumers show their willingness to buy green products if they acquire green value; therefore, green value is positively and significantly related to willingness to buy green products.

Another study by Chen (2013) investigated the impact of green value, green trust, and green satisfaction on green loyalty. The result of the study found that green loyalty is significantly enhanced by green trust, green value, and green satisfaction; however, green value has the strongest relationship with green loyalty as compared to other constructs. The author suggested that organizations must maximize green value in their products to enhance green loyalty among consumers.

Recently, Khan and Mohsin (2017) explored the value of green products on consumer choice behavior among consumers of Pakistan. The study found that the value of green products is significantly related to consumer choice behavior. The authors discussed that consumers prefer products with higher green value because

they believe that such products protect the environment to a greater degree. Similarly, Ramayah et al. (2010) researched green product purchase intentions using green product value and revealed that green value is an indicator of green product purchase intentions, therefore providing such products would enhance the purchase intentions among consumers. Interestingly, Wong (2012) regards green product innovation as a facet of the green product value. The author believes that providing innovative green products to the customers would eventually enhance perceived green value among consumers, therefore organizations must devise strategies to produce innovative green products for their customers.

Green value is considered an important construct that plays a significant role in the repurchase intention of green products. To investigate this phenomenon, Lam et al. (2016) examined the role of green value, green satisfaction, and green trust on the repurchase intention of green products. The study manifested that among these constructs, green value is regarded as the strongest predictor of repurchase intention of green products followed by green trust and green satisfaction. This indicates that consumers prefer green value while intending to repurchase green products. Similarly, Harahap et al. (2018) also examined the influence of knowledge of green products and green value on green purchase behavior. The results demonstrated that both the factors i.e. knowledge of green products and green value has a positive association with green purchase behavior, therefore the authors suggested that initiative regarding the enhancement of green product knowledge and green value would be helpful in the purchase behavior of green products.

Consumers who are inclined to protect the environment tend to buy products with higher green value because such consumers believe that purchasing these products will help the natural environment. This philosophy has been discussed by Wang et al. (2020) who studied the impact of green value on green purchase behavior. Similarly, Wang (2017) studied different determinants of green purchase behavior and found that among all the determinants, green value has the strongest and positive relationship with green purchase behavior. The author of the study also discussed that green value is a major contributor to shaping green behavior among consumers.

Higher green value in products allows greater protection for the environment and the purchase of such products increases dramatically in the market. Suki and Suki (2019) examined the predictor of green purchase behavior and the result revealed that green value maximizes green purchase behavior among consumers. Similarly in a recent study, Sharma (2021) conducted a study to investigate the indirect effect of green value on green purchase behavior using green loyalty as a direct predictor. The result of the study manifested a positive and significant relationship of green value with both green loyalty and green consumption behavior.

2.4 Green Concern

The green concern is defined as the opinions and perceptions of an individual about various environmental problems and attitudes that are developed due to the interaction of an individual with the environment (White & Simpson, 2013). The green concern is regarded as a prominent predictor of pro-environmental behavior and attitude (Mcdonald et al., 2015). According to the definition proposed by Newton et al. (2015), the green concern is the consciousness of individuals towards ecological and environmental problems and wants to take desired actions to mitigate those problems. Similarly, Akehurst et al. (2012) described green concern as an awareness of individuals with regards to environmental issues and their willingness to overcome those problems. Similarly, Singh and Bansal (2012) defined green concern as the consciousness of individuals towards the problems of the environment and their perceptions about the significance of solving such problems. The definition of green concern by Weigal (1978) focuses on the awareness of people with regards to environmental issues that can be seen in recognition, attitudes, and response towards those problems. Green concern plays a pivotal role in establishing green behavioral attitudes in people (Wu et al., 2019).

Past literature and research on green concern have shown that green concern and environmental attitudes of individuals are inter-related concepts (Song & Luximon, 2019). Researchers argue about the concept of green concern as somebelieve it to be a totally independent factor while others regard it difficult to state an operational definition of this construct (Kwon et al., 2016). However, one of the

most quantitatively and comprehensively conceptualized scales of green concern is the New Ecological Paradigm Scale (NEP) established by Dunlap and Van Liere (1978). According to this scale, there are two facets of green concern. The first facet of green concern highlights particular environmental problems such as the attitude of individuals with regards to the disposal of pollution or waste products. The second facet of green concern focuses on a universal and wider conceptualization of green concern such as views of individuals about ecological issues and how individuals are related to their environment.

Over the past few years, green concern as a construct has taken the attention of various scholars (Albayrak et al., 2013). During the 1970s, people became quite concerned about energy conservation and environmental pollution due to which green concern was highlighted as an important parameter (Hartman & Apaolaza-Ibanez, 2012). Moreover, in the 21st century, large-scale industrialization changed the behavior of consumers and organizational related activities which further highlighted this concept (Sarkis, 2011). The increasing importance of green concern of consumers has enabled energy savings and the use of renewable and green products of the businesses for their operations (Bang et al., 2000). This indicates that if a larger number of consumers develops green concern, it would certainly help to reduce the production of products that are harmful to the natural environment.

The level of green concern of consumers is developed due to ongoing environmental issues and dilemmas such as climatic changes, reduction in biodiversity, an increase in natural disasters (Wu et al., 2019). Such environmental issues have become a matter of serious concern for individuals concerning the protection and preservation of the environment; therefore, it could be quite risky for the global ecosystem (Felix et al., 2018). The current environmental problems play a crucial role in maximizing green concern which helps to make people environmentally responsible which is reflected in their purchasing behavior.

The increase in consumer awareness and concern towards the environment shall reduce the production of goods and services that are not environmentally friendly and consumers shall be inclined towards the purchase of more eco-friendly and green products offered by the business (Thieme et al., 2015). According to the observation by Hartman and Apaolaza-Ibanez (2012), the green concern of the

consumers is quite an influential factor that enables the engagement of consumers towards the purchase of green products. A study conducted by Czap and Czap (2010) found that a higher degree of green concern among consumers leads to eco-friendly behavior and green product buying behavior. This indicates that green concern is an important factor that shapes green product buying behavior among consumers.

Nielsen (2019) conducted a global consumer survey that released that revealed the product purchasing process of several consumers has included factors of sustainability in their purchase pattern. The author reported that seventy-three percent of consumers desire to change their spending habits for the mitigation of harmful substances for the environment and the consumers also showed great interest in purchasing and using environmentally friendly products. Carter and Rogers (2008) asserted that the green concern of consumers helps to initiate waste reduction type social activities which results in positive outcomes for the environment. Therefore, the green concern is not only related to environmental problems but it strongly focuses on changing consumer behavior and organizational activities. In addition to this, in the future, the green concern might bring more opportunities for the businesses such as sustainable business management achieving a competitive edge (Song & Luximon, 2019).

Research on green concern has found that consumers with more awareness of protecting their environment and its importance are likely to show a higher level of green concern (Felix et al., 2018). This indicates that developing awareness among consumers about environmental issues can help mitigate the adverse effects of harmful materials on the environment. A study conducted by Harman and Apaolaza-Ibanez (2012) examined the indirect and direct effects of green concern on the environment and the results of the study revealed that green concern is significantly and positively related to consumer attitude and their purchase behavior towards the adoption of green and eco-friendly products. In general, the study focused on the direct and indirect association of green concern with green behavior among consumers. Also, green concern significantly enhances the purchasing intention of consumers with regards to green and eco-friendly products (Hutchins & Greenhalgh, 1997). The authors also stated in their study that consumers with

a high-level green concern can influence the behavior of their family members or peers resulting in more people engaging in green product buying behavior.

Sadachar et al. (2018) asserted that individuals who have more knowledge about environmental issues are more likely to have a green concern. The increase in desire to protect the natural environment from harmful substances and concern for future generations have enabled the consumers to develop green concern among them (Slavoljub et al., 2015). Moreover, the green concern is also developed among consumers who have greater knowledge about the adverse effects of business operations and products (Hsu et al., 2017).

Chen et al. (2015) regard green concern as the direct or indirect predecessor of the green purchase intentions of consumers. Consumers who have a higher degree of green concern have a stronger sense of being responsible towards the environment and practice behavior that is more environmentally friendly such as buying and recycling eco-friendly items and energy-saving (Biswas & Roy, 2015). In addition to this, such consumers can identify organizational green-washing and understand its adverse effects, due to which their consumption of such products reduces to a greater extent (Newton et al., 2015). Moreover, according to Kwon et al. (2016), green concern acts as a moderator between brand greenness perception and environmental ratings. In the Chinese context, harmony exists between nature and humans, thus this type of harmony helps to attract the attention of people towards environmental protection. In light of this understanding, Johnstone and Tan (2015) stated that awareness of severe environmental pollution enables Chinese consumers to impose their green beliefs onto their habits of consuming green products and minimize irresponsible buying intentions. Hartman and Apaolaza-Ibanez (2012) stated that the green concern of the consumers is quite an influential factor that enables the engagement of consumers towards the purchase of green products.

General environmental attitudes and personality traits of consumers affect the behavior of the consumer, and such factors enhance the environmental concern of consumers due to which a visible change in their purchase behavior could be seen (Zhang et al., 2018). Consumers who are intrinsically concerned about their society and environment tend to engage in conservation behavior (Verma et al., 2019).

According to various studies, the purchase of environmentally-friendly products is due to green concerns among consumers (Murshid et al., 2021). Some of the dimensions of green concern that have been explored by scholars are awareness of clean energy, climatic-change problems, energy conservation, and alternative energy sources (Zahid et al., 2018). According to Malik et al. (2019), the consumers who are more inclined towards green energy consumption tend to show more green concern as compared to the general population. Moreover, green concern for the environment plays a critical role in purchase decisions of green energy products (Malik et al., 2019). Also, another factor that plays an important role in developing green concerns and shaping the purchase intention of the consumer is the attitudes of consumers towards renewable energy (Verma et al., 2019). Furthermore, the consumers who have a higher degree of green concern are willing to purchase green electricity even at a higher price (Murshid et al., 2021). This shows that such consumers desire to protect the environment by using any means.

Based on the positive relationship between green value and green purchase behavior, the present study assumes that green concern acts as a moderator between green value and green purchase behavior and strengthens this relationship. According to the study conducted by Zhang et al. (2019), green concern weakens the relationship between greenwashing perception and green purchase behavior. The authors suggested that greenwashing minimizes green purchase behavior, but with the addition of green concern, the negative effect of greenwashing perception on green purchase behavior substantially reduces, thus, increasing the purchase of green and eco-friendly products.

Kwon et al. (2016) carried out a study to investigate the role of green concern as a moderator between brand greenness perception and environmental ratings. The results showed that green concern is a significant moderator between these constructs. In the Chinese context, harmony exists between nature and humans, thus this type of harmony helps to attract the attention of people towards environmental protection. According to this knowledge, Shah et al. (2021) asserted that awareness of severe environmental pollution problems enables consumers in China to impose their green beliefs onto their habits of consuming green products and minimize irresponsible buying intentions that might affect the environment.

Chuah et al. (2020) discussed that the green concern of the consumers is quite an influential factor that enables the engagement of consumers towards the purchase of green and eco-friendly products.

2.5 Frugality and Green Purchase Behavior

The ongoing problem of environmental pollution and energy crises has encouraged a frugal lifestyle to minimize environmental pollution, save resources/energy, and eliminate the energy crisis. Goldsmith et al. (2014) and Pepper et al. (2009) have studied the antecedents of frugality that have been studied previously such as the study on benefits of frugality for organizations by Asakawa et al. (2019), the study on the hedonic delights of frugality by Hulme (2019), the study on examining the relationship between consumer behavior and frugality by Pan et al. (2019); Chen et al. (2019); Evers et al. (2018), the study on food security policy and frugality by Bhaduri (2018), the investigation on the innovation of frugality by Hossain (2020), and the study on subjective well-being and frugality by Sung (2017). Moreover, current studies have demonstrated a close relationship between frugality and resource conversation (Liebnam, 2019 and sustainable consumption behavior (Awais et al., 2020).

The frugality of consumers is affected by various internal and external motivational factors. According to Albinsson et al. (2010), Chinese society believes that frugality culture positively affects the lifestyle and living habits of the individuals, therefore, the behavioral patterns of the consumers are imperceptibly influenced by frugality. Though such consumers are price-sensitive, when it comes to protecting the environment, they spend generously to purchase green products. Similarly, do Paco et al. (2019) also asserted that, though frugal consumers pay more attention to less expensive goods or services they also see the benefits associated with green goods, thus, increasing their green purchase behavior.

A recent study by Sodam et al. (2020) found that frugality in consumers enables them to be prudent in their consumption, low in acquisitiveness and materialism, less wasteful, and long-term oriented; hence, this helps them to enhance their green

purchase behavior. Additionally, recent literature has shown a positive association between frugality and green purchase behavior (Barrera-Hernandez et al., 2020). According to Ekardt (2020), frugality is considered a fundamental element of sustainable transition which suggests that frugal consumers tend to purchase green and eco-friendly products. Therefore, in light of these studies and findings, the following hypothesis has been developed:

$\mathbf{H}_1$: Frugality has a positive relationship with Green Purchase Behavior

2.6 Frugality and Green Value

Frugality focuses on purchasing the goods and services that provide long-term benefits to the consumers rather than short-term (Evers et al., 2018). Frugality stresses sufficiency, value for money, and efficiency in the consumption of goods or services (Mirsosa & Lawson, 2012). It emphasizes financial prudence and finds value while purchasing any goods or services (Jagannathan et al., 2020). Such consumers tend to purchase green products with a higher degree of green value because such products protect the natural environment to a greater extent (Sadom et al., 2020). Recently, Chen et al. (2019) suggested that frugality advocates for delivering value, and under this concept only such products are purchased by the consumers that provide more benefits. This indicates the importance of frugality in maximizing green product value. Moreover, Naderi and Van Steenburg (2018) discussed that frugality, which is a self-oriented and rational motive, is a significant driver of green value; hence the green value in the product is acquired by frugal consumers because they like to purchase products with higher green value. Therefore, based on past studies, the following hypothesis has been established:

$\mathbf{H}_2$: Frugality has a positive relationship with Green Value

2.7 Green Value and Green Purchase Behavior

Consumers who are inclined to protect the environment tend to buy products with higher green value because such consumers believe that purchasing these products

will help the natural environment. This philosophy has been discussed by Wang et al. (2020) who studied the impact of green value on green purchase behavior. Similarly, Wang (2017) studied different determinants of green purchase behavior and found that among all the determinants, green value has the strongest and positive relationship with green purchase behavior. The author of the study also discussed that green value is a major contributor to shaping green behavior among consumers.

Higher green value in products allows greater protection for the environment and the purchase of such products increases dramatically in the market. Suki and Suki (2019) examined the predictor of green purchase behavior and the result revealed that green value maximizes green purchase behavior among consumers. Similarly in a recent study, Sharma (2021) conducted a study to investigate the indirect effect of green value on green purchase behavior using green loyalty as a direct predictor. The result of the study manifested a positive and significant relationship of green value with both green loyalty and green consumption behavior. Based on these studies, the following hypothesis has been developed:

$\mathbf{H}_3$: Green Value has a positive relationship with Green Purchase Behavior

2.8 Green Value as a Mediator

According to Suki (2016), green value has been recognized as a major determinant of consumer purchase intention. As the definition of green value states that this concept is the consumer's overall assessment about the green product or service that has been received by the consumers in return for what they have given to purchase green product or service (Zeithaml, 1988), thus the concept of green value is critical for the business marketer and the consumers because it is regarded as an important component related to the on-going business market. Green value focuses on the attitude of individuals towards the general performance and quality of green products (Patterson & Spreng, 1997). The pro-environmental behavior of consumers compels them to involve in green purchase behavior (Alamsyah & Syarifuddin, 2018), and the green purchase behavior of consumers is developed as

a result of the green product value. Therefore, the consumers who value products with more green attributes or are frugal, tend to purchase green and eco-friendly products. Moreover, Sanganthi (2019) investigated the mediating role of green practices in the relationship between corporate social responsibility and green purchase intention and found that green practices such as green value and green performance partially mediated the relationship between CSR and green purchase behavior.

Zameer et al. (2020) revealed in the study that green innovation is a strong mediator between business analytics and environmental orientation, and discussed that green innovation provides greater green value to the consumers as a result of business analytics and environmental orientation, therefore consumers tend to be involved in green purchase behavior. In addition to this, Yousaf (2021) examined the mediating role of green value and green practices between green innovation and green purchase behavior. The result demonstrated that green value acts as a mediator between green innovation and green purchase behavior, such that as green innovation increases, the value of green products also increases which enhances green purchase behavior among consumers. Therefore, in light of these studies and findings, the following hypothesis has been developed:

H^4: Green Value plays a mediating role in the relationship between Frugality and Green Purchase Behavior

2.9 Green Concern as a Moderator

Over the past few years, green concern as a construct has taken the attention of various scholars (Albayrak et al., 2013). During the 1970s, people became quite concerned about energy conservation and environmental pollution due to which green concern was highlighted as an important parameter (Hartman & Apaolaza-Ibanez, 2012). Moreover, in the 21st century, large-scale industrialization changed the behavior of consumers and organizational related activities which further highlighted this concept (Sarkis, 2011). The increasing importance of green concern of consumers has enabled energy savings and the use of renewable and green products of the businesses for their operations (Bang et al., 2000). This indicates that

if a larger number of consumers develops green concern, it would certainly help to reduce the production of products that are harmful to the natural environment.

Based on the positive relationship between green value and green purchase behavior, the present study assumes that green concern acts as a moderator between green value and green purchase behavior and strengthens this relationship. According to the study conducted by Zhang et al. (2019), green concern weakens the relationship between greenwashing perception and green purchase behavior. The authors suggested that greenwashing minimizes green purchase behavior, but with the addition of green concern, the negative effect of greenwashing perception on green purchase behavior substantially reduces, thus, increasing the purchase of green and eco-friendly products.

Kwon et al. (2016) carried out a study to investigate the role of green concern as a moderator between brand greenness perception and environmental ratings. The results showed that green concern is a significant moderator between these constructs. In the Chinese context, harmony exists between nature and humans, thus this type of harmony helps to attract the attention of people towards environmental protection. According to this knowledge, Shah et al. (2021) asserted that awareness of severe environmental pollution problems enables consumers in China to impose their green beliefs onto their habits of consuming green products and minimize irresponsible buying intentions that might affect the environment. Chuah et al. (2020) discussed that the green concern of the consumers is quite an influential factor that enables the engagement of consumers towards the purchase of green and eco-friendly products. Therefore, the following hypothesis has been developed:

H^5: Green Concern plays a moderating role in the relationship between Green Value and Green Purchase Behavior.

The present study aims to analyze the hypotheses mentioned above using the signaling theory. Past studies conducted on green marketing have widely used and acknowledged this theory (Mavlanova et al., 2016). The signaling theory serves as a framework that helps understand the precursors and antecedents of green consumption behavior among consumers (Zameer et al., 2020).

The signaling theory was developed by Stigler (1961) and it posits that certain signals influence an individual to depict certain behavioral outcomes. The signaling theory further notes that there are two entities involved in the exchange of signals. One is the sender of signals and the other is the receiver of the signals. The signals are information that is received by the individuals i.e., consumers upon the basis of which they depict certain behavioral outcomes. The sender of the signals can be the organizations, government policies, environmental changes, etc. Moreover, the behavioral outcomes depicted by the consumers are a direct function of the signals that are received from the surrounding environment (Zameer et al., 2020). It means that positive signals such as favorable government policies, waste reduction campaigns, environmental awareness campaigns, etc. will generate positive behavioral outcomes such as environmental consciousness, green consumption, etc. (Mavlanova et al., 2016).

The signaling theory has been widely used by researchers to explain the green purchase and consumption behavior of consumers (Chuah et al., 2020). For instance, Shah et al. (2021) in their study on the impact of green values on green consumption observed that the green values are shaped as a result of the signals obtained by the consumers from their surrounding environment. These signals may include; environmental awareness campaigns, climatic changes, pollution, global warming, resource depletion, etc. Upon the basis of these signals, the consumers tend to adopt green values that encompass a sense of resource conservation and a reduction in wasteful activities to mitigate the harmful environmental effects. These green values in turn drive consumers to buy and purchase green and eco-friendly products (Shah et al., 2021).

Therefore, in light of the above-mentioned findings, the signaling theory can be used in the context of the current study in a manner that the signals received by the consumers from the surrounding environment such as global warming, environmental pollution, excessive resource consumption, etc. will drive the consumers to adopt a more frugal approach when it comes to buying products and services. This frugal lifestyle will in turn lead the consumers to purchase and consume those products that possess eco-friendly attributes.

2.10 Conceptual Framework

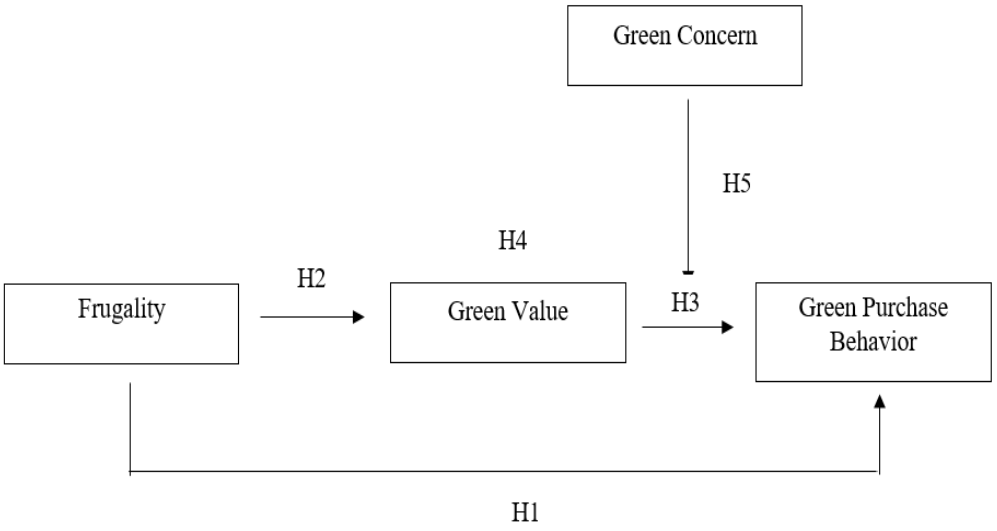

FIGURE 2.1: Conceptual Framework

Chapter 3

Research Methodology

This chapter outlines the research methods that were applied to investigate and examine the impact of frugality on green purchase behavior (GPB) with the mediating and moderating mechanisms of green value (GV) and green concern (GC). A research methodology holds utmost importance because it helps the researcher to formulate and devise a clear methodological plan to examine the underlying research questions and hypotheses. Moreover, a clear and detailed methodology is paramount to the overall integrity of the research. The methodological plan outlined in this study includes; research philosophy and design, universe/target population, sampling techniques, unit of analysis and time horizon, instrumentation, data collection, and data analysis procedures. The current study had adopted the research onion technique proposed by Saunders et al. (2007) to formulate the methodological plan.

3.1 Research Philosophy/Design

Research philosophy can be described as the overall approach adopted by a researcher to examine and investigate a particular problem or phenomenon. Therefore, it is of utmost importance for the researcher to select a research philosophy and design that aligns with the nature and context of the study. Bordens and Abbott (2002) argue that a research design should be devised in such a manner that is consistent and harmonious with the overall objectives of the research.

Presently, there are several research philosophies and designs that are being used particularly in the field of social and management sciences. Out of these research philosophies, some of the major ones include the interpretive, positivist, post-positivist, pragmatic, and empiricist research philosophies. According to Hovorka and Lee (2010), the interpretive and positivist views are the most used and highly regarded philosophies that are being used by researchers and scholars all over the world.

The interpretive view is an important school of thought that is being used by many researchers. The interpretive philosophy supports the claim that a certain phenomenon can only be examined and observed with a certain degree of external human influence. On the other hand, the proponents of the positivist view support and emphasize the fact that a certain phenomenon should be examined (Sobh & Perry, 2006). The interpretive view emphasizes the use of qualitative tools and techniques to assess and analyze the data. Whereas, the positivist view emphasizes the use and adoption of quantitative tools and techniques to assess and analyze the data. These quantitative tools and techniques involve surveys, paper and pencil tests, questionnaires, and various other statistical procedures such as regression, correlation, etc. The major underlying objective of this study is to develop and formulate a comprehensive framework upon the basis of rigorous inquiry and empirical evidence to gain a deeper insight regarding the antecedents of green purchase behavior and how frugality and green value influence an individual to exhibit eco-friendly buying behavior. Therefore, it would be beneficial for the researcher to adopt a positivist research philosophy for this study because this approach perfectly aligns with the objectives of this study. Under this approach, a quantitative design was adopted which involved the adoption and use of surveys and other statistical tools to address the underlying research questions and objectives.

3.2 Population/Universe of the Study

A population or universe is often regarded as the main area of interest and focus of the study. A population is also called the niche that is being analyzed and studied.

A population may involve anything and is entirely dependent upon the context of the study that is being conducted. A population may include an individual or a group of individuals, a group, a community, an area, a locality, a country, etc. Hence, it is crucial for the researcher to clearly define the niche/population of the study to yield accurate and credible results.

The current study was focused on investigating the impact of frugality on green purchase behavior with the mediating and moderating role of green value and green concern. A thorough review of the literature reveals that various studies in the context of developing nations have opted to analyze the consumers of cosmetic products for data collection and analysis. The population defined in similar research includes the regular consumers of cosmetic and personal care products (Wang et al., 2021). Another major area that needs considerable attention is how frugality may foster green purchase behavior in the context of developing nations such as Pakistan (Soomro et al, 2020). In the context of Asian nations such as China, there have been a few studies that have observed the antecedents of green purchase behavior, but there is a dearth of knowledge when it comes to understanding and determining the various antecedents and predictors of green purchase behavior in the context of nations such as Pakistan and India (Soomro et al., 2020; Jaiswal & Kant, 2018). Therefore, the present study is an attempt to empirically investigate the impact of frugality on the green purchase behavior of Pakistani consumers. Moreover, the present study intends to develop a comprehensive framework that can be used to understand how frugality acts as an antecedent and predictor of green purchase behavior.

Moreover, many researchers have observed the increased tendency of consumers in developing nations towards the adoption and use of green and eco-friendly products (Hameed et al., 2019). This can be evidenced from the fact that studies carried out on Chinese, Indian and Malaysian consumers depict that the consumers are more prone to buy green products as compared to the traditional ones but very fewer studies have been undertaken in the context of a developing nation such as Pakistan to validate this claim (Hameed et al., 2019).

Wang et al. (2021) in their study on Chinese consumers of cosmetic products investigated the impact of frugality on green purchase intention through the mediating

mechanism of motivation to save. The authors observed a significantly strong relationship between frugality and green purchase intention and they recommended further replication of the study in other contexts by introducing new mediating and moderating mechanisms such as green value and green concern. Therefore, the current study aims to fulfill this gap by investigating the relationship between frugality and green purchase behavior through the mediating role of green value and the moderating role of green concern.

Hence, in light of the previous studies carried out in similar contexts, the population/niche of this study involved the consumers of cosmetic and personal care products who are presently residing in the twin metropolitan cities of Islamabad and Rawalpindi. The characteristics of the population involved gender, age, education, and income levels. As far as gender is concerned, the population included both male and female consumers. Moreover, consumers above the age of 18 years were considered for this study, and as far as education is concerned, the consumer having at least a high school education were included. The lowest income threshold was Rs.50,000.

3.3 Sample Size Calculation and Sampling Technique

A common problem faced by the researchers is often associated with the dilemma of studying large populations. Observing large populations is a time-consuming process that involves the allocation and commitment of a large number of resources. Therefore, to address this dilemma, the researchers usually chalk out a sample from the target population. This sample serves as the representation of the entire population and the data obtained from the sample aids the researcher to determine the various characteristics and attributes of the population. There have been a plethora of studies and views about the determination of a suitable sample size to conduct research. Hair et al. (2006) argues that there is no such pre-established technique to determine suitable and sufficient sample size for a

study. However, there are certain techniques and rules of thumb that are used by the researchers to ascertain a suitable sample size.

One such rule is Roscoe's Rule of Thumb which is used by many researchers to determine sample size. This rule of thumb was developed and proposed by Roscoe (1975). According to this rule of thumb, a sufficient and suitable sample size should lie between 30 and 500 samples. Any sample consisting of less than 30 respondents is deemed as insufficient and unsuitable. However, a major criticism of this rule of thumb is that it does not exactly specify a number for a suitable sample size.

Moreover, Tanaka (1987) came up with the item response theory which entailed that sample size could be calculated upon the basis of the number of items present in the measurement scales of the study. The item response theory entails that, 10 responses are required against each of the items that are present in the measurement scale (10:1). If Tanaka's item response theory is applied in the context of this study, then the sample size will be 170 because there are 17 items on the measurement scale of this study. Despite the relevance of the item response theory, Arrindell and Van der Ende (1985) oppose this technique and posit that 10 responses against each item are insufficient and might lead to unreliable results.

Arrindell and Van Der Ende (1985) posit that instead of ten, 20 responses should be obtained against each item (20:1). The authors further argue that by applying this technique, the results are more likely to be desirable and accurate. If this technique is applied to the context of this study, then the total sample size will turn out to be 340 because there are 17 items on the measurement scale. However, despite the efficacy of this technique, researchers still contest its accuracy and reliability.

Ryan (2013) argues that Slovin's Power formula is a highly accurate and reliable technique for sample size determination. According to the author, there is an agreement of a majority of the researchers regarding this technique's efficacy. A visual depiction of Slovin's formula can be seen below:

$$\mathbf{n= N/1+Ne^2}$$

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

The application of the Slovin's formula significantly facilitates the researcher to determine a suitable and sufficient sample size. Hence, the present study also adopted the Slovin's approach to determine the sample size. The population of the current study was estimated to be somewhere near to 4 million individuals. After assuming the population, the sample size was calculated as follows:

$$n= 4000000/(1+(4000000x0.05^2))$$
$$n= 400$$

n= 400

The sample of the current study was determined at 400 respondents. Now, once the sample size was determined, it was important to adopt a suitable sampling technique to acquire data from the 400 respondents. The sampling techniques can be classified into two major categories namely; the probability and the non-probability sampling techniques. In a probability sampling technique, each member of the population has an equal chance of selection whereas, in a non-probability sampling technique, there is no equal chance of selection for each member.

Since the population of the study was based upon estimation and the exact listing of the population was not available, a non-probability convenience sampling technique was adopted for this study. Under this technique, the data is obtained from those respondents that are easily and conveniently accessible and reachable by the researcher. Moreover, this technique was also adopted because it facilitates the researcher to acquire data in an efficient, fast, and cost-effective manner.

3.4 Unit of Analysis

A unit of analysis mainly pertains to the main entity that is being studied or observed by a researcher. A unit of analysis can be anything ranging from an

individual, group of individuals, a group, a community, a particular region, etc. The unit of analysis for this research was individual because this study was focused on the individual consumers of cosmetic and personal care products that are presently residing in the twin metropolitan cities of Islamabad and Rawalpindi.

3.5 Time Horizon

The time horizon specifies the period through which the data will be obtained from the respondents. Two main types of time horizons are generally used in management science research. These are the longitudinal and cross-sectional time horizons. In a longitudinal time horizon, the data is collected from the respondents at various intervals of time whereas, in a cross-sectional time horizon, the data is obtained from the respondents at one point of time only. The time horizon of this study was cross-sectional because the data was acquired from the respondents at a singular point of time only.

3.6 Instrumentation

The scales of measurement for this study were adopted from the research that has been conducted in the past under similar contexts. Before the adoption of the scales, a pilot test was undertaken to ascertain the reliability of the scales. Moreover, a 5-point Likert scale was adopted to gauge the responses of the participants. On a 5-point Likert scale there are 5 options (i.e., 1=strongly disagree..... 5=strongly agree).

The respondent can tick the option that he/she thinks most likely describes their views and opinions. The scale consisted of two sections. The first section involved the demographic information of the respondents such as gender, age qualification, and income. Whereas, the second section was focused on measuring the constructs of the study. The table given below shows the variables of the study along with their corresponding items and the sources from where those items/scales were adopted.

TABLE 3.1: Instrumentation

Variable	**Items**	**Source**
Frugality	6	Lastovicka et al. (1999)
Green Purchase Behavior	4	Jaiswal & Kant (2018)
Green Value	3	Pahlevi & Suhartanto (2020)
Green Concern	4	Zhang et al., (2018)

It can be observed that the scale of frugality consisted of 06 items and it was adopted from Frazier & Faber (2011). There were 04 items in the green purchase behavior scale and it was adopted from Jaiswal & Kant (2018). The scale of green value had 03 items and it was adopted from Pahlevi & Suhartanto (2020) whereas there were 04 items in the scale of green concern and it was adopted from Zhang et al., (2018). The complete measurement scale can be viewed in the Appendix portion of this study.

3.7 Data Collection

The data was obtained from the respondents through the aid of a survey form. The survey form was circulated both physically and digitally using online google forms. The respondents were briefed about the purpose of the study and the procedure for filling out the survey form. An ample period was provided to the respondents and all queries were addressed effectively. The researcher undertook all efforts to comply with the prescribed ethical guidelines of the APA. These include the right of voluntary participation, informed consent, protection of confidential information, and right of withdrawal at any given time.

3.8 Data Analysis Techniques

The data that was collected from the participants was arranged, organized, and examined through the aid of the SPSS and PLS software. Using this software,

various statistical tests and procedures were applied to ascertain the validity of the proposed hypotheses. These tests involve; reliability, construct validity, factor loading analysis, structural equation modeling (SEM), and mediated moderation. These tests facilitated the researcher to develop key conclusions and insights regarding the antecedents of green purchase behavior. A correlation analysis aids the researcher to determine the association, direction, and magnitude of the relationship between multiple constructs. The correlation coefficient is the measure of the correlation between constructs. Since there were multiple constructs in this study, a correlation analysis was extremely beneficial to the researcher. Regression analysis is a statistical procedure of analyzing the effect of one unit change in the predictor variable onto the outcome variable. Regression aids the researcher to determine the relationship (i.e., positive or negative) between multiple constructs. A mediated moderation is conducted when there is a mediator and moderator present in a study. A mediator variable explains the relationship between a predictor and outcome variable whereas, a moderator strengthens or weakens the relationship between two constructs. A mediated-moderation using the SEM technique was beneficial in the context of this study because it consisted of a mediator (i.e., green value) and a moderator (i.e., green concern).

Chapter 4

Data Analysis and Discussion

This chapter elucidates the process of the data analysis that was undertaken to investigate and analyze the impact of frugality on green purchase behavior through the mediating and moderating mechanisms of green value and green concern. The data was obtained from various consumers of green cosmetic and personal care products that are currently residing in the metropolitan cities of Islamabad and Rawalpindi. The data was obtained from 316 participants through the aid of survey forms that were distributed both physically and electronically through online google forms. Various statistical tests were conducted through the use of Smart PLS software to determine the validity of the hypotheses that were proposed by the present study. These tests involved a demographic analysis, descriptive analysis, reliability, validity, factor loading, and structural equation modeling (SEM) technique to determine the relationship between the constructs of the study. The results have been thoroughly discussed in the succeeding chapter and upon the basis of the results, some key theoretical and practical implications have also been discussed towards the end of this study. The sample size of the present study was estimated to be 400. This sample size was achieved after the application of Slovin's power formula. A non-probability convenience technique was adopted to obtain data from the participants of the study. Therefore, a survey technique was adopted. The participants of the study were thoroughly conveyed about the purpose of this study. Moreover, they were frequently reminded to fill up the survey forms and return them promptly. Out of the 400 survey forms that were

distributed, 342 were returned. Out of these 342 survey forms, 316 were deemed to be usable for this study while the rest of the survey forms were discarded. Therefore, the overall response rate was 85.5% and the usable response rate was 79%. The calculation of the response rate is depicted in the table shown below.

TABLE 4.1: Response Rate

Questionnaires Circulated	**Questionnaires Returned**	**Usable Questionnaires**	**Response Rate %**	**Usable Response Rate %**
400	342	316	85.50%	79%

4.1 Demographic Analysis

The survey form was categorized into two sections. The first section was aimed at obtaining information about the demographic characteristics of the participants. These demographic characteristics included age, gender, income, and qualification. On the other hand, the second section comprised the scales of the constructs that were adopted to measure them. A 5-point Likert scale was deployed to acquire the responses. The demographic characteristics of the participants have been shown in the tables given below.

TABLE 4.2: Gender

		Frequency	**Percent**	**Valid Percent**	**Cumulative Percent**
Valid	Male	196	62	62	62
	Female	120	38	38	100
	Total	316	100	100	

The table and figure given above depict the gender distribution of the participants who took part in this study. The figure shows the gender distribution through

the aid of a histogram and trendline. It can be observed that 196 males took part in this study and they constituted 62% of the total study sample. On the other hand, it can also be seen that 120 females also opted to take part in this study and the ratio of female participation stood at 38% which is significant and noticeable. However, a majority of the participants were males. The age distribution of the

Table 4.3: Age

		Frequency	**Percent**	**Valid Percent**	**Cumulative Percent**
Valid	20-30 years	138	43.7	43.7	43.7
	31-40 years	150	47.5	47.5	91.1
	41-50 years	20	6.3	6.3	97.5
	51-60 years	8	2.5	2.5	100
	Total	316	100	100	

participants shows that 138 participants were aged between 20 to 30 years and they constituted 43.7% of the total sample. 150 respondents were aged between 31 to 40 years and they contributed 47.5% towards the sample size. Moreover, 20 individuals were aged between 41 to 50 years and 8 individuals were aged between 51 to 60 years and they constituted 6.3% and 2.5% of the total sample size. It can be observed that a majority of the participants belonged to the age bracket of 20 to 40 years with a cumulative sample size contribution of 91%.

Table 4.4: Education

		Frequency	**Percent**	**Valid Percent**	**Cumulative Percent**
Valid	High School/-College	129	40.8	40.8	40.8
	Undergraduate	117	37	37	77.8
	Post Graduate	70	22.2	22.2	100
	Total	316	100	100	

The respective qualifications of the participants have been depicted in the table and figure shown above. It can be seen that 129 individuals had a high school/college degree and they comprised 40.8% of the total study sample. 117 individuals were undergraduates and they constituted 37% of the total sample. Moreover, 70 individuals had a postgraduate qualification and they made up 22.2% of the total sample size. It can be seen that the majority of the participants had a high school/college and undergraduate qualification with a cumulative sample size contribution of 77.8%.

Table 4.5: Income

		Frequency	**Percent**	**Valid Percent**	**Cumulative Percent**
Valid	Below Rs.50,000	168	53.2	53.2	53.2
	Rs.50,000 to Rs.100,000	93	29.4	29.4	82.6
	Rs.100,000 to Rs.200,000	34	10.8	10.8	93.4
	Above Rs.200,000	21	6.6	6.6	100
	Total	316	100	100	

The income distribution of the participants depicts that, 168 individuals had an income of less than Rs.50,000 and they constituted 53.2% of the total sample. 93 individuals had an income that ranged between Rs.50,000 to Rs.100,000 and they comprised 29.4% of the sample size. Moreover, 34 individuals had an income ranging between Rs.100,000 to Rs.200,000 and they constituted 10.8% of the sample. Whereas 21 individuals had an income of more than Rs.200,000 and they constituted 6.6% of the total sample.

Table 4.6: Descriptive Statistics

	N	Mean	Std. Deviation	Skewness	Std. Error	Kurtosis	Std. Error
F	316	3.6709	0.68839	-0.658	0.137	1.104	0.273
GV	316	3.8196	0.70934	-0.925	0.137	1.654	0.273
GC	316	3.8038	0.58848	-0.219	0.137	0.111	0.273
GBP	316	3.6638	0.87303	-0.733	0.137	0.554	0.273

The descriptive statistics have been depicted in the table shown above. The descriptive statistics include the means, standard deviation, and the values of skewness and kurtosis that have been obtained against each of the constructs. It can be observed that the mean values obtained against all of the constructs are above 3.60 based on which it can be ascertained that the average responses against all of the constructs lie towards the "agree" side of the 4th point on the Likert scale.

The values of standard deviation demonstrate the degree of dispersion around the mean values and it can be seen that all values of standard deviation are within the acceptable threshold of -1 to +1. Therefore, it can be ascertained that the data were evenly dispersed around the mean values. The normality of the data is depicted through the use of skewness and kurtosis values. It can be observed that all values of skewness and kurtosis fall within the acceptable threshold values of -1 to +1 and -3 to +3 respectively. Therefore, it can be established that the data was normal and evenly distributed along the frequency distribution curve. Hence, further statistical analysis can be carried out effectively.

4.2 PLS-SEM Results

This section of the current chapter sheds light on the examination and analysis of the data that was obtained from the participants of the study. A PLS-SEM technique was utilized to analyze the data. A structural equation modeling technique was adopted to evaluate the outer and inner models. Therefore, the SmartPLS statistical software was used.

4.2.1 Measurement Model

The evaluation of the outer PLS model is the initial step when it comes to the overall examination of the measurement model. It involves the examination of the main components that make up the main model. The outer PLS model has two main dimensions namely; reliability and validity. The examination of the measurement model includes the assessment of certain key facets which include internal consistency reliability (Cronbach's Alpha), composite reliability (CR), convergent validity, discriminant validity, and average variance extracted (AVE). The Fornell-Larcker technique was adopted to measure the validities.

4.2.2 Cronbach's Alpha

The Cronbach's alpha is a measure of internal consistency between the items of the measurement scales that have been adopted to measure the constructs of the

study. The acceptable values of Cronbach's Alpha lie between 0.70 to 0.90 (Santos, 1999).

TABLE 4.7: Cronbach's Alpha

Variables	**Cronbach's Alpha**
Frugality	0.811
Green Value	0.761
Green Concern	0.734
Green Purchase Behavior	0.894

The table shown above depicts the Cronbach's Alpha values that were obtained against each of the variables of the study. It can be observed that all values of Cronbach's Alpha are higher than the acceptable threshold of 0.70. Therefore, it can be ascertained that all the instruments adopted to measure the constructs were highly reliable.

4.2.3 Composite Reliability

As opposed to Cronbach's Alpha, composite reliability (CR) does not factor in the equal loading for a particular variable. The values of composite reliability lie between 0 and 1. A CR value of 0.60 is considered to be fair. A CR value lying between 0.60 and 0.70 is regarded as satisfactory whereas, a CR value ranging between 0.70 and 0.90 is regarded as highly satisfactory and desirable. The CR values obtained against all the constructs of the study are shown in the table given below.

TABLE 4.8: Composite Reliability

Variables	**Composite Reliability (CR)**
Frugality	0.864
Green Value	0.862
Green Concern	0.712
Green Purchase Behavior	0.926

It can be seen from the table given above that all values of composite reliability surpass the acceptable threshold limit of 0.60. Hence, it can be established that the measurement model of this study is reliable to conduct the further statistical examination.

4.2.4 Average Variance Extracted

Once the assumptions of the internal consistency reliability and composite reliability have been met, it is important to examine the presence of convergent validity. Convergent validity is regarded as the degree to which the constructs of the study have a theoretical association with each other. The average variance extracted (AVE) is the measure of examining the presence of convergent validity. The desirable values of AVE should be higher than 0.50.

Table 4.9: Average Variance Extracted

Variables	**Average Variance Extracted (AVE)**
Frugality	0.514
Green Value	0.676
Green Concern	0.738
Green Purchase Behavior	0.759

The values of AVE obtained against each of the constructs of the study have been shown in the table given above. It can be observed that all values of AVE satisfy the minimum desirable threshold limit of 0.50. Hence, it can be said that convergent validity was present in between the constructs.

4.2.5 Discriminant Validity

Discriminant validity determines the extent to which a particular construct is different from another construct. To measure the discriminant validity, the Fornell Larcker technique is the most commonly used approach.

Table 4.10: Discriminant Validity

Variables	**F**	**GC**	**GPB**	**GV**
F	**0.717**			
GC	0.397	**0.734**		
GPB	0.48	0.453	**0.871**	
GV	0.495	0.361	0.533	**0.822**

Note: F = Frugality; GC = Green Concern; GPB = Green Purchase Behavior; GV = Green Value.

The general criterion for measuring discriminant validity is that the square root of the AVE values obtained for each of the constructs should be greater than the construct's highest correlation with another latent construct. The scores of discriminant validity obtained against each of the variables can be observed in the above-given table. It can be seen that the underlying assumption for discriminant validity has been successfully met. Consequently, the presence of discriminant validity has been established.

Table 4.11: Factor Loadings

ITEMS	**F**	**GC**	**GV**	**GPB**
F1	0.664			
F2	0.726			
F3	0.74			
F4	0.699			
F5	0.768			
F6	0.7			
GC1		0.647		
GC2		0.728		
GC3		0.772		
GC4		0.826		
GV1			0.842	
GV2			0.8	
GV3			0.824	
GPB1				0.826
GPB2				0.856
GPB3				0.914
GPB4				0.888

The factor loadings of all the individual items of the constructs have been depicted in the table given above. According to LamberWildt and Durand (1991), using multiple items to measure a construct is highly desirable and the contribution made by each item is reflected through the factor loadings. The values of factor loadings have been classified into three main categories (Shevlin & Miles, 1998). A factor loading of less than 0.30 is considered undesirable. A loading of higher than 0.50 is fair, and loadings greater than 0.70 are highly desirable. For, the purpose of this study, the benchmark for factor loadings was set at 0.50 and above.

It can be seen from the above-mentioned table, that all of the factor loadings surpassed the benchmark value of 0.50. Therefore, it can be said that all of the items made a significant and noticeable contribution to this study. The general rule is that, if the outer loading of an item is higher than its cross-loading with other indicators, the presence of discriminant validity is established. Therefore, in light of the values of the factor loadings that were obtained, it can be deduced that discriminant validity was not a concern for the present study.

4.3 Structural Model

The assessment of the structural model is the next step once the evaluation of the measurement model has been completed. A detailed assessment of the structural model was undertaken for this study. Firstly, the direct relationships between the constructs were analyzed. The coefficients and p-values were examined through the use of the PLS-SEM bootstrapping technique. The technique involved the adoption of a 95% bias-corrected bootstrap that included 316 subsamples.

The main reason behind this was to examine the relationship between the predictor i.e., frugality, and the outcome variable i.e., green purchase behavior. In addition to this, the standard errors, t-statistics, and path coefficients were also examined to validate the proposed hypotheses. The PLS-SEM algorithm and the bootstrapping direct relationship models can be viewed below. These two models were utilized to determine the relationship between the constructs of the study.

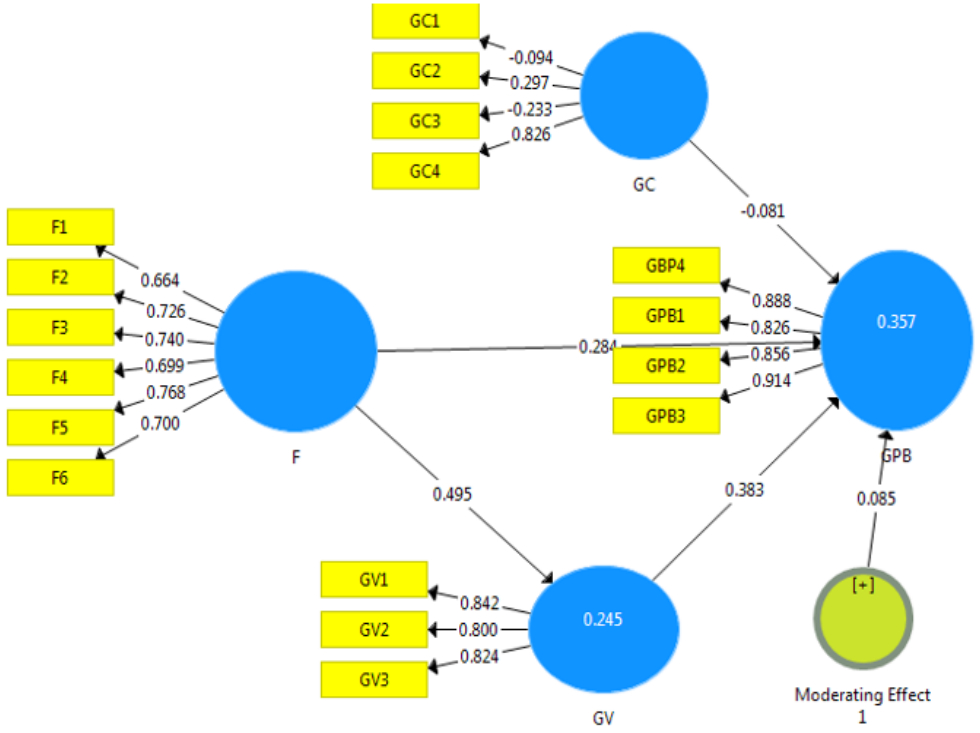

FIGURE 4.1: PLS-SEM Algorithms Direct Relationships

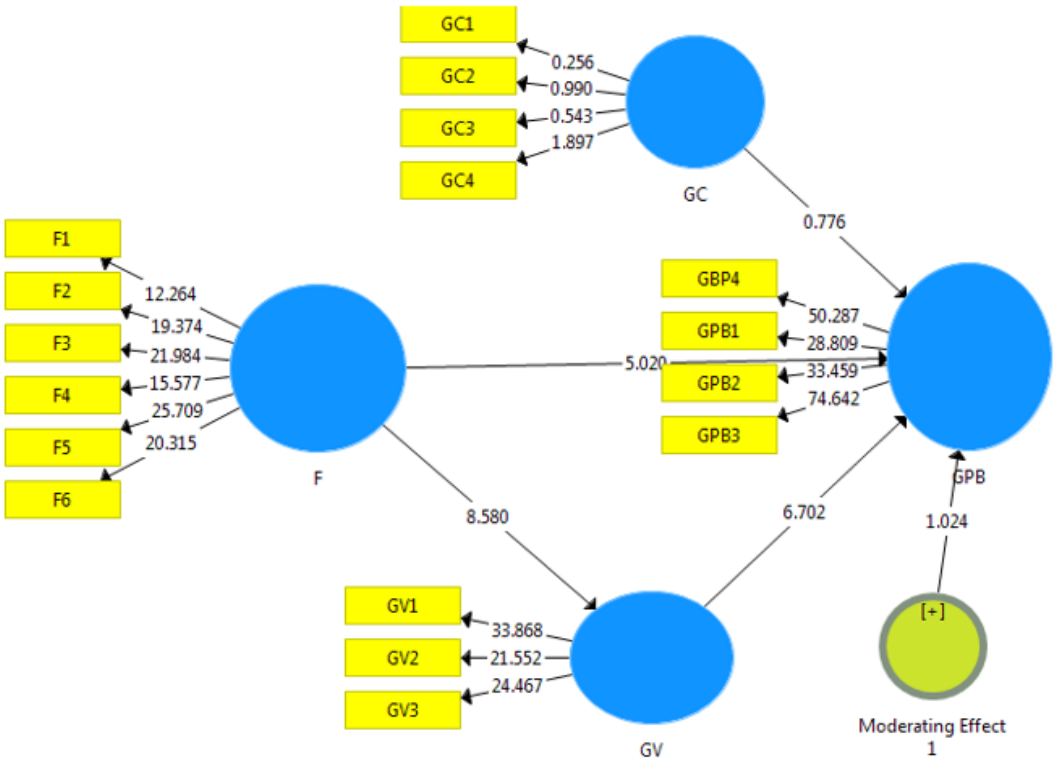

FIGURE 4.2: PLS-SEM Bootstrapping Direct Relationships

Table 4.12: Direct Relationships

Hypothesis/Path	**Original Sample (O)**	**Standard Deviation (STDEV)**	**T-Statistics (O/STDEV)**	**P-values**	**Decision**
H1 F -> GPB	0.284	0.058	5.02	0.00	Accepted
H2 F -> GV	0.495	0.056	8.58	0.00	Accepted
H3 GV -> GPB	0.383	0.059	6.702	0.00	Accepted

The results obtained after the application of the PLS-SEM algorithms and PLS-SEM bootstrapping to test the direct relationships between the constructs are given in the table shown above. This includes an in-depth analysis of the inner model using various indicators. These indicators include original sample means, standard deviations, t-statistics, and p-values. It can be seen that all values of t-statistics surpass the minimum threshold value of 1.96. Hence, it can be established that all outer loadings are highly significant.

Moreover, it can be observed that the first proposed hypothesis has been accepted as seen from the t-value i.e., 5.020, and p-value i.e., 0.000. Hence it can be said that frugality (F) has a positive impact and relationship with green purchase behavior (GPB). The second hypothesis has also been validated as shown by the t-value and p-value i.e., 8.580 and 0.000 respectively. Consequently, it can be said that frugality (F) has a positive and significant relationship with green value (GV). In addition to this, the third hypothesis has also been accepted as shown through the t-value and p-value that are 6.702 and 0.000 respectively. Therefore, it can be concluded that green value (GV) has a positive relationship with green purchase behavior (GPB).

4.4 Mediation Analysis

A mediation analysis was undertaken to ascertain whether the relationship between frugality and green purchase behavior is explained through a third variable i.e., green value. The mediating role of green value (GV) in the relationship between frugality (F) and green purchase behavior (GPB) was tested through the conductance of an indirect path analysis. A bootstrapping technique involving 316 subsamples was adopted for the mediation analysis. The results of the mediation analysis can be viewed in the table given below.

Table 4.13: Mediation Analysis

Hypothesis / Path	Original Sample(O)	Standard Deviation (STDEV)	T-Statistics (O/STDEV)	P-values	Decision
H4 F -> GV -> GPB	0.189	0.039	4.864	0.00	Accepted

The results obtained after the conductance of the mediation analysis can be viewed in the table shown above. It can be seen that the fourth hypothesis has been accepted as depicted by the t-value and the p-values which are 4.864 and 0.000

respectively. As a result, it can be concluded that green value (GV) partially mediates the relationship between frugality (F) and green purchase behavior (GPB).

4.5 Moderation Analysis

A moderation analysis is conducted whenever there is a moderating variable that exists between two particular constructs. This analysis tests and determines whether or not the presence of a moderator strengthens or weakens the relationship between two constructs. In the present context, green concern (GC) was introduced as a moderator in the relationship between green value (GV) and green purchase behavior (GPB). The results of the moderation analysis can be viewed in the table shown below.

Table 4.14: Moderation Analysis

Hypothesis / Path	Original Sample(O)	Standard Deviation (STDEV)	T-Statistics (O/STDEV)	P-values	Decision
H5 GC*GV -> GPB	0.085	0.08	1.024	0.287	Rejected

The moderating effect of green concern (GC) in the relationship between green value (GV) and green purchase behavior (GPB) can be observed in the table given above. It can be viewed that the fifth hypothesis has been rejected as depicted by the t and p-values i.e., 1.024 which is less than 1.96, and 0.287 which is higher than 0.05. Therefore, it can be concluded that green concern (GC) does not moderate the relationship between green value (GV) and green purchase behavior (GPB).

4.6 Summary of Results

This chapter presented a detailed analysis of the data that was obtained from 316 consumers of green cosmetic and personal care products to investigate the impact of frugality on green purchase behavior through the mediating and moderating roles of green value and green concern. A structural equation modeling technique

was adopted through the aid of the SmartPLS software to carry out the data analysis. The results suggest that frugality has a positive relationship with green purchase behavior. It was also observed that frugality had a positive impact and relationship with green value. Moreover, green value also had a positive relationship with green purchase behavior. In addition to this, it was also observed that green value partially mediated the relationship between frugality and green purchase behavior. Whereas, green concern did not moderate the relationship between green value and green purchase behavior.

Chapter 5

Discussion and Conclusion

5.1 Discussion

The present study was aimed at investigating the impact of frugality on green purchase behavior through the mediating and moderating mechanisms of green value and green concern. Therefore, the data was acquired from 316 consumers of green cosmetic and personal care products through the aid of survey forms. Data analysis was carried out using a structured equation modeling technique (SEM). Using this technique, a total of five hypotheses were tested the results of which can be viewed in the preceding chapter. This chapter presents a thorough discussion of the findings and some valuable theoretical and practical implications along with future research directions.

The first hypothesis, H1 proposed that there was a positive relationship between frugality (F) and green purchase behavior (GPB). The results confirmed the validity of this hypothesis as it was observed that frugality had a positive and significant impact on green purchase behavior. Therefore, it can be said that the consumers who have a frugal lifestyle are more inclined and driven towards purchasing and using eco-friendly products. This finding also confirms and supports the findings of the previous studies. For instance, this finding validates the findings of Paco et al. (2019) who in their study also observed that frugal consumers are more likely to see the benefits associated with green products which in turn drives them to exhibit green purchase behavior. Similarly, Sodam et al. (2020) in their study also

observed that frugal consumers are more prudent with their consumption patterns and they like to reduce waste and conserve resources which is why they are more driven to purchase and use those products that possess green and eco-friendly attributes. Similarly, Ekardt (2020) also considered frugality to be a major and critical antecedent and predictor of green consumption behavior. Therefore, it can be deduced that frugality positively influences the development of green behavioral patterns in individuals.

The second hypothesis, H2 posited that frugality (F) had a positive relationship with green value (GV). This hypothesis was also validated as the results indicated the presence of a significant positive relationship between frugality and green value. It can be said that the consumers who have a frugal lifestyle are more inclined and driven to develop green values that encompass a more conscious attitude towards the surrounding environment. Moreover, this finding also confirms and reinforces the findings of the previous studies. For instance, Chen et al. (2019) in their study observed that frugal consumers are more likely to develop green values as they become more conscious of the environment. These green values then induce the consumers to depict green purchase behavior. Moreover, Jagannathan et al. (2020) also observed that a frugal lifestyle catalyzes the development of individual green values. These green values encompass a sense of responsibility towards the surrounding environment. Once these green values are developed and inculcated, the consumers are more likely to be driven towards those products that are eco-friendly and possess green attributes. Therefore, it can be concluded that frugality also serves as a critical factor that plays an instrumental role in the development of individuals' green values.

The third hypothesis, H3 predicted that there was a positive relationship between green value (GV) and green purchase behavior (GPB). The results of the study confirmed the validity of this hypothesis as it was observed that green value had a significant and positive impact on green purchase behavior. Hence, it can be ascertained that the consumers who possess strong individual green values that are categorized by a high level of environmental awareness are more likely to develop and engage in eco-friendly and resource-conserving consumption patterns. This finding is also in harmony with the findings of prior researchers that have

been conducted in similar contexts. For instance, Wang (2017) studied the relationship between green consumer values and green consumption behavior. The author observed that green values positively influence the development of green purchase behavior. Moreover, it was established that green values are an important contributor to the development of green purchase patterns. Similarly, Suki and Suki (2019) in their study also investigated the relationship between green values and green consumption behavior. The results revealed that green values played an instrumental role in maximizing the development of green purchase behavior amongst the consumers. Sharma (2021) also observed similar results and concluded that green values were a significant and critical predictor and antecedent of green purchase behavior.

The fourth hypothesis, H4 proposed that green value (GV) mediated the relationship between frugality and green purchase behavior. The validity of this hypothesis has been confirmed through the results of this study. It was observed that the relationship between frugality and green purchase behavior was explained through a third variable i.e., green value. Hence, it can be concluded that the consumers who have a frugal lifestyle are more likely to develop green values which in turn would induce the consumers to engage in green purchase behavior. This finding supports the claims made by other researchers in their respective studies that were undertaken in similar contexts. For instance, Sanganthi (2019) observed that green value mediated the relationship between corporate social responsibility and green purchase intention. Moreover, Zameer et al. (2020) also observed the mediating role of green value in the relationship between business analytics and environmental orientation. Similarly, Yousuf (2021) also observed that green value mediated the relationship between green innovation and green purchase behavior. Therefore, it can be established that green value plays a bridging role in fostering the relationship between certain key green consumer-related outcomes.

The fifth hypothesis, H5 predicted that green concern (GC) moderated the relationship between green value and green purchase behavior. This hypothesis was rejected as the results indicated that green concern does not moderate the relationship between green value and green purchase behavior. It means that green concern either strengthened or weakened the relationship between green value and

green purchase behavior. This finding is contrary to the findings of prior studies. For instance, Zhang et al. (2019) observed that green concern buffered the relationship between greenwashing and green purchase behavior. Moreover, Kwon et al. (2016) also observed that green concern moderated the relationship between green brand image and environmental ratings. Moreover, Chuah et al. (2020) also posited that green concern was an important factor that fostered green behavioral outcomes among the consumers.

The rejection of this hypothesis may be attributed to the fact that Pakistan is a developing nation and there is a lack of awareness present in the masses with regards to the issues associated with the surrounding environment (Soomro et al., 2020). According to Soomro et al. (2020), there is a lack of awareness and research in the context of Pakistan with regards to how green behavior can be fostered and promoted among the masses and this is the main reason behind the lack of concern shown by the individuals towards critical environmental issues. Therefore, it becomes imperative for policymakers to develop comprehensive strategies that are aimed at promoting environmental awareness among the masses to mitigate the harmful effects of environmental degradation.

5.2 Theoretical Contributions

The findings of the present study have significantly aided in broadening the present literature on green purchase behavior in certain key and important ways. Firstly, the present study has made a crucial contribution to the present body of knowledge by empirically investigating and examining the relationship between frugality and green purchase behavior from the perspective of an individual consumer. Moreover, a crucial attempt has been made by the present study by making an important theoretical contribution towards an emerging stream of research by investigating the relationship between frugality and green purchase behavior in the Pakistani cultural context. The prior studies on green purchase behavior in the context of a developing nation such as Pakistan were scarce and begged further

inquiry. Hence, this study is one of the few attempts to bridge this gap by examining the predictors of green purchase behavior from the perspective of an individual Pakistani consumer of a green product.

In addition to this, the current study puts forward an important and comprehensive theoretical framework that can be utilized to examine and assess the relationship between frugality and green purchase behavior. Furthermore, the results of this study indicate that green value is an important factor that helps in explaining the relationship between frugality and green purchase behavior. Moreover, it was also observed that green value was a major predictor and antecedent of green purchase behavior. Therefore, it was established that green value drives the consumers to engage in green purchase behavior which encompasses the purchasing and consumption of those products that have green and eco-friendly attributes.

Lastly, this study also made an important theoretical contribution by investigating the moderating role of green concern in the relationship between frugality and green purchase behavior. The results indicated that green concern does not moderate the relationship between frugality and green purchase behavior. This was mainly attributed to the lack of environmental awareness of the consumers towards the environment. Although, there were many studies carried out in other similar contexts that regarded green concern as an important construct that influences green purchase behavior.

5.3 Practical Implications

The present study also encompasses some key practical implications for policymakers, managers, and organizations. Managers should have tried to spread awareness about green behavior and told the importance of green concern. The results revealed that frugality had a positive and significant relationship with green purchase behavior. Hence, it becomes imperative for policymakers and organizations to undertake initiatives and develop policies that are aimed at promoting a frugal lifestyle among the masses. This can be achieved by launching extensive awareness campaigns in major urban centers to reduce the problem of excessive resource consumption and depletion. Consumers need to be educated regarding the harmful

effects of environmental degradation and how simple lifestyle changes can reduce these harmful effects.

Moreover, it is also imperative for the organization to introduce such products in the market that possess eco-friendly and green attributes. Furthermore, the organization needs to launch extensive CSR campaigns to educate the masses about the benefits of using eco-friendly products. Furthermore, it becomes a crucial responsibility for the government institutions to develop such policies that are aimed at providing incentives to those businesses that intend to develop and market eco-friendly products.

Therefore, the study's findings are important for marketers from two angles. The first angle is of actually making programs, plans and strategies in order to protect the environment. The second angle is of portraying their green efforts and activities in a positive manner while avoiding any sort of exaggeration and falsification. By doing so the companies can win customer loyalty and trust, which will ultimately lead to increased sales and profitability.
Moreover, a valuable strategy in this regard would be to introduce green education into the national curriculum to inculcate green values among the young population at an early age. As more and more populations become educated and environmentally conscious, the purchasing and buying patterns of society will gradually start to change. This would result in a significant decrease in the overall levels of environmental pollution as more and more individuals would become engaged in demonstrating green consumption behavior.

5.4 Limitations and Directions for Future Studies

This study had certain limitations that were associated with it. The scope of this research was restricted to the consumers of green cosmetic and personal care products that were currently residing in the metropolitan cities of Islamabad and Rawalpindi. Hence, the findings of this study cannot be generalized to the entire

population. Therefore, future studies should improve generalizability by broadening the scope of this study by expanding the sample size to include the responses of more participants. Moreover, the present study obtained cross-sectional data. Future studies should adopt a longitudinal horizon to generate more reliable and generalizable results. Furthermore, this study only investigated the mediating and moderating mechanisms of green value and green concern. Future research can introduce other mediators and moderators to broaden the understanding of the relationship between frugality and green purchase behavior. Some possible mediating and moderating roles that can be examined include motivation to save, price sensitivity, and availability of green products. By inculcating these variables, the understanding of the relationship between frugality and green purchase behavior can be further strengthened.

5.5 Conclusion

The unprecedented pace of globalization and consumerism has had several adverse implications that have resulted in the emergence of some serious environmental problems such as global warming, excessive resources consumption, depletion, and increased levels of pollution. These problems have led to an alteration in the consumption patterns that are categorized by adopting a more frugal and resource-conversing approach when it comes to purchasing and consuming various products and services. The results of this study reveal that the consumers who possess a frugal lifestyle are more inclined and driven towards purchasing eco-friendly products. Moreover, it has also been established that frugality positively influences the development of green values which in turn drives consumers to engage in green purchase behavior. Therefore, it becomes imperative for the businesses, managers, and policymakers to constitute and implement such policies that are aimed at spreading awareness among the masses with regards to the benefits of adopting a frugal lifestyle and its positive effects on the surrounding environment.

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Appendix-A

Questionnaire

Dear Respondent

I am student of MS/M-Phil Management Sciences at Capital University of Science and Technology Islamabad. I am conducting a research on a topic titled "thesis title". You can help me by completing the attached questionnaire, you will find it quite interesting. I appreciate your participation in my study and I assure that your responses will be held confidential and will only be used for education purposes.

Sincerely,

name,

MS (HR) Research Scholar,

Faculty of Management and Social Sciences,

Capital University Science and Technology, Islamabad.

Section 1: Demographics

Gender	1- Male 2- Female
Age(years)	1 (26-33), 2 (34-41), 3 (42-49), 4 (50-above)
Qualification	1 (MS/M.Phil.), 2 (PhD)
Experience(years)	1 (0–5), 2 (6–10), 3 (11-15), 4 (16-21), 5 (22-above)
Designation	1 (Lecturer), 2 (Assistant Professor), 3 (Associate Professor), 4 (Professor)

Section 2: Emotional Labor

Please tick the relevant choices: 1= strongly disagree, 2= Disagree, 3 = Neutral, 4= Agree, 5= Strongly Agree.