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Determinants of Green Purchase Behavior: An Implication of Theory of Reasoned Action

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ABSTRACT

This research aims to understand the factors that influence consumer green purchasing behavior. A theoretical model of TRA and TPB has been applied to study consumer behavior. For analyzing the model 540 middle income-earners of Multan are selected with a non-probability conviction sampling technique has been used. The data has been analyzed using the PLS-SEM technique. The results obtained show a positive association between Intention-Behavior, Attitude-Intention-Behavior, Subjective Norms-Intention-Behavior, Consumer Perceived Environmental Concern-Intention-Behavior, and Green Product Knowledge-Intention-Behavior. This study enhances the understanding of consumer behavior in the Southern belt of Pakistan by adding more insight into the literature on TRA and TPB. The unique concept of this study is the Green Product Knowledge that has been widely used in marketing research but still fewer studies have focused on the impact of GPK.

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1. Introduction

The concern over environmental pollutants and toxicants has prompted a focus on protecting the natural environment, addressing global warming, and promoting the use of green products (Mutmainah & Wahidhani, 2024). This shift is driven by increased public awareness about environmental issues and health concerns and an aim to adopt eco-friendly lifestyles (Elgammal, 2023; Yen & Dung, 2023). According to a report of 2022 by World Wide fund, the expoliation of natural resources over the last 50 years has enhanced as compared to Earth's capacity. If not controlled, this trend could jeopardize life on Earth (Dangi, Gupta, & Narula, 2020). The United Nations has proposed the Sustainable Development Goals, aiming for total environmental compliance by 2030 through reduced human ecological impact and increased consumption and production of environmentally friendly products (Joshi, Uniyal, & Sangroya, 2021). Consumer trend for purchasing green sustainable products has been observed to be significantly increasing (Nosi, Zollo, Rialti, & Ciappei, 2020). They are adopting behaviors that have a positive impact on the environment while reducing negative effects (Kadic-Maglajlic, Arslanagic-Kalajdzic, Micevski, Dlacic, & Žabkar, 2019). Studies in developed countries have shown that consumers are willing to pay for green products, suggesting a connection between green purchasing behavior and consumer environmental concerns (C.-C. Chen, Chen, & Tung, 2018; Shamila Khan & Mohsin, 2017). The trend of green purchasing and consumption is not limited to developed nations but is also prevalent in several Asian countries such as China, India, Pakistan, Malaysia, Thailand, and Korea. These developing countries are

actively promoting the adoption of green behaviors for a sustainable environment (Ali, 2022; Danish, 2019; Shamila Khan & Mohsin, 2017; Pham, 2019).

According to Carducci (2021), the trend of green consumption and development has yet to revolutionize consumption patterns in developing countries although urban consumers in these regions show a growing interest in environmentally-friendly products. And so, the research and study on green consumer behavior is also at the infancy stage. There is a huge gap between consumer green purchase products and actual green purchase behavior. In Pakistan according to the report of the Environmental Protection Index (Wolf, 2022), the country ranks at 176 among 180 countries in terms of environment sustainability (Majeed, Aftab, Arslan, & Shakeel, 2024). The electronic industry in Pakistan has the potential for energy conservation, but consumer green purchasing behavior is currently low (Bank, 2019). Achieving sustainability in green product consumption depends on actual green purchase behavior. Recent studies have revealed that consumer green purchasing behaviors are influenced by product, individual-based, and societal factors (Yang, Liu, Cherubini, Fu, & Pereira, 2020; Yu, Ma, Cheng, & Kyriakopoulos, 2020; Zhang & Chabay, 2020). Consumer Green Purchasing Behavior has been dominantly impacted by the increased production and consumption of green products, as well as the positive attitude and intention to switch towards green consumption (Firdaus, Xue, Gang, & Sibt-e-Ali, 2022; Orellano, Valor, & Chuvieco, 2020). This behavior development is highly studied by influential theories such as the Theory of Reasoned Action (TRA) and Planned Behavior (TPB) (H. Wang, Ma, & Bai, 2019; J. Wang, Xue, Sun, & Yang, 2019). Theory of Reasoned Action (TRA) emphasizes how personal factors like attitudes, norms influences onsumer intentions and behaviors (Jung, Choi, & Oh, 2020). The Theory of Planned Behavior highlights green product knowledge and environmental concerns as significant factors for consumer decision-making toward purchasing behaviors (Waris & Hameed, 2020). Consumers' green purchasing decisions are significantly influenced by their knowledge of green products, which is the primary factor driving environmentally friendly consumption behaviors and intentions (H. Wang, Ma, & Bai, 2019). Green product knowledge encompasses consumer information, cognition, and understanding related to environmental impact, awareness of environmental issues, and the effects of their actions on the environment (M. Rahsilaputeri, 2022; Ullah, Abro, Ul Mustafa, & Sibt-e-Ali, 2023). This awareness leads to increased confidence in products, and satisfaction with purchases, and influences continuous purchasing behavior (Marvi, Maleki Minbashrazgah, Zarei, & Baghini, 2020). With increased green product knowledge, there is a noticeable change in consumer purchasing habits for green products in Pakistan (Anwar, 2020; Rehman, Abro, Ul Mustafa, Ullah, & Khattak, 2021), such as the shift in purchasing from non-green to green vehicles.

Consumer attitude towards the environment significantly influences green purchasing behavior, motivating consumers to buy green products. Studies by Carrión Bósquez, Arias-Bolzmann, and Quiroz (2022); Shao, Jeong, Zhang, and Jang (2022), support this notion, highlighting the impact of positive attitudes on consumer decisions for environmentally friendly products (Nosi, 2020). Consumers' attitudes towards green product consumption and environmental concerns significantly impact their purchasing decisions (Carrión Bósquez, Arias-Bolzmann, & Quiroz, 2022; Kumar, 2017; Ma, Akhtar, Akhtar, Hashim, & Sibt-e-Ali, 2022; Saraireh, 2023). Subjective norms strongly influence environmentally conscious consumer behavior and attitudes toward green purchasing, despite challenges related to the quality, affordability, and pricing of eco-friendly products in Pakistan. These norms are attributed to the perception that environmentally friendly products contribute to conserving natural resources and promoting good health. According to the Theory of Reasoned Action, subjective norms significantly impact purchase intention and behavior (Mazhar, Jalees, Asim, Alam, & Zaman, 2022; Yadav & Pathak, 2016). Consumer concern for the environment strongly influences green purchasing behavior. Active involvement in environmental revitalization leads to more conscientious consumer conduct. This internal concern drives consumers' preservation and safeguarding of the natural environment (Soomro, Ali, Latif, Mirani, Ali, & Soomro, 2020). Green environmentalists should actively promote green purchasing among consumers, especially in developed nations like Hungary where predicting consumer behavior is challenging despite high environmental awareness. The younger generation shows strong support for environmental conservation, but their sensitivity to these issues seems to be influenced by familial values (Hussain, Ul Mustafa, & Ullah, 2022; Naz, Jamshed, Nisar, & Nasir, 2021). Jaiswal and Kant (2018), found in their research that cognitive factors have a direct and indirect impact on stimulating consumers' intention to make green purchases, particularly

through the mediating effect of attitude. In contrast, Taufique and Vaithianathan (2018), concluded that attitudes towards the environment play a significant direct, and positive role in influencing both green purchase intention and environmentally conscious consumer behavior. Zhuang, Luo, and Riaz (2021), found that subjective norms play a significant role in green purchasing intention, contributing to purchasing ability, while attitude influences willingness. The literature review highlighted a focus on attitudinal practices for purchasing intentions and behaviors, with limited research on actual customer behavior toward environmentally friendly purchases (Wijekoon & Sabri, 2021). Mutmainah and Wahidhani (2024), revealed that knowledge and purchasing intention are strong predictors of Consumer Green Purchasing Behaviors but extensive product knowledge does not always impact consumer decisions.

1.1. Research Objectives

1. Identify the determinants of green purchase behavior of Pakistani consumers.
2. Analyze and understand the relationship of factors responsible for the green purchase behavior of Pakistani consumers.

1.2. Research Questions

1. What factors shape the green purchase behavior of Pakistani consumers?
2. How do these factors shape or influence the green purchase behavior of Pakistani consumers?

1.3. Problem Statement

Over the past decade significant changes have been observed in Pakistan's Climate due to environmental degradation, impacting health and socio-economic well-being. Research indicates that while increased environmental awareness promotes green products, actual purchasing behavior may not always align with intentions (Majeed et al., 2024). Studies have shown conflicting results on the relationship between consumer attitude and purchase intention (Soomro et al., 2020). The factors influencing the purchase decisions of green product consumers in Pakistan are still not fully understood despite some new positive links being identified such as consumer-perceived environmental concern and green product knowledge (Mutmainah & Wahidhani, 2024). Personal and family decisions along with subjective norms influence both intentions and behaviors related to purchasing in this context. The complexity and ambiguity of measuring the consumer behavior has steered thorough different researches and studies in Pakistan contributing significantly to developing and analyzing behavior regarding green purchase. This study attempts to develop an integrated model to evaluate the green purchasing behavior of middle-income earners in Multan.

1.4. Significance of Study

The current study aims to study the contradictory and complex relationships identified in the literature about the actual purchase behavior of consumers through the mediation effect of subjective norms, attitudes towards the environment, consumer perceived environmental concerns, and green product knowledge toward the environment. The study also seeks to provide insightful knowledge on this relationship due to educated consumers' intentions regarding green products. Furthermore, it will offer results for middle-income consumers in Multan investigating green purchase behavior. The significance of this study can be derived from the policy-makers, CEOs, and managers in promoting behaviors toward green purchases. The findings will help in creating a culture both inside and outside organizations, enhancing consumer knowledge, concerning eco-friendly norms ensuring their responsibility towards environmental and green concerns. Additionally, it will provide insight for the marketing unit in analyzing patterns of consumers' behavioral intentions in Multan.

2. Literature Review

2.1. Theory of Reasoned Action

The Theory of Reasoned Action was initially developed by Martin Fishbein and Ajzen in 1975. It establishes a fundamental framework that offers a rational explanation for the interconnections among these four aspects (Awadallah, 2021). As per this theoretical perspective, it is possible to assess and forecast behaviors by examining the intentions of individuals. The theory presents a significant idea concerning behavior analysis and emphasizes the crucial importance of focusing attention on specific elements (Harb, Khliefat, Alzghoul, Fowler, Sarhan, & Eyoun, 2021). This model includes four components: belief, attitude,

intention, and behavior, which are interrelated and consistently form a robust association (Kumar, 2017). Behavior is shaped and formed based on intentions that are influenced by attitudes and subjective norms. The component of action is affected by an individual's attitudes, which may be positively or negatively influenced by past experiences or actions witnessed (Saraireh, 2023). Belief systems on subjective norms arise from the opinions followed by individuals nearby who also serve as a strong source of motivation for adopting those thoughts or emotions. The determination to take action or developing intentions towards taking action can be examined through two factors: the attitude leading to action and the second includes subjective norms (Mutmainah & Wahidhani, 2024).

2.2. Theory of Planned Behavior

Planned Behavior Theory is an expanded version of TRA by Ajzen and Fishbein. It was designed to assess the factors and aspects that predict behaviors and comprehend the underlying reasons for engaging in such phenomena (Ajzen, 1991). TPB states that individual behavior is governed by three components which include the individual's attitude, its subjective last intentions. The prediction of environmentally friendly product purchases and the positive impact of influential behavior has been further investigated by examining an additional variable in the TPB model: consumer-perceived environmental concern. This factor has been explored as a precursor to intentions to purchase green products and as a fundamental aspect of green behavior for purchasing (Wasaya, Prentice, & Hsiao, 2022). This factor promotes consumer awareness regarding the usage of eco-friendly products to safeguard the environment from harmful substances. Research by Mahasan, Hashmi, Jan, Abid, and Mohsin (2024) indicates that individuals with a deeper understanding of green products are more likely to adopt eco-friendly consumer behaviors. A recent study by Putri and Hayu (2024) highlights the direct influence of demand for green products on industrial buyer/seller dynamics. Having a better comprehension of environmental conservation could lead consumers to purchase green products.

2.3. Consumer Green Purchase Behavior

Consumer Green purchasing behavior refers to the proactive and protective action of consumers towards environmentally friendly and renewable products (Naz et al., 2021). Consumers' environmentally friendly purchasing behaviors have grown as they recognize the adverse effects of their past consumption choices on the environment (Y.-S. Chen, Chang, & Chen, 2020). This increased awareness has led to a shift towards more sustainable and responsible consumer behaviors. Consumer Green purchasing behavior refers to the buying habits of consumers who prioritize environmentally friendly products that contribute to nature conservation and environmental sustainability (Song, Qin, & Qin, 2020). For instance, individuals conscious of the negative impacts of non-eco-friendly food items have demonstrated a noticeable shift towards green products, showing a strong preference for them (Correia, Sousa, Viseu, & Leite, 2021). Although many consumers may prioritize green products for personal health reasons rather than environmental concerns, their actions still contribute to promoting sustainable living (Kamalanon, Chen, & Le, 2022). Currently, consumers are showing increased enthusiasm for protecting the environment and their health by being willing to pay higher costs for environmentally friendly products.

2.4. Consumer Green Purchasing Intentions

The Theory of Reasoned Action posits that intentions play a crucial role in shaping behavior. From a research perspective, scholars view the Theory of Reasoned Action as the most straightforward and effective measure for assessing intention toward a particular behavior. The association between behavioral intention, conceptualized by Fishbein and Ajzen, reveals that intentions represent an individual's maximum inclination and beliefs about engaging in a specific behavior (Dangi, Gupta, & Narula, 2020). Importantly, it reflects the explicit determination of the actor to carry out said behavior. According to the model developed by Fishbein and Ajzen, intention is considered as the immediate determinant of behavior, with attitudes and subjective norms serving as supplementary factors influencing specific behaviors (Fontes, Moreira, & Carlos, 2021; Zhuang, Luo, & Riaz, 2021). Intentions are viewed as a key factor in predicting perceived behaviors within this framework.

2.5. Attitude Towards Environment

Attitude is an individual's belief which can be assessed or examined through their positive and negative sentiments towards engaging in a particular behavior (C.-C. Chen, Chen,

& Tung, 2018). Ajzen and Fishbein have examined the formation of attitudes, emphasizing the thoughtful consideration individuals engage in before deciding to adopt a specific behavior (Buabeng-Andoh, 2021). Attitude formation is rooted in an individual's belief system, shaped by past experiences or observations related to a particular situation. Attitudes reflect personal beliefs and thoughts influenced by personal experiences and knowledge gained (Bashir, Bayat, Olutuase, & Abdul Latiff, 2019). According to Nguyen, Yang, Nguyen, Johnson, and Cao (2019) attitude stands out as the psychological indicator and evaluator based on the awareness, experience and insight about benefits associated with its consumption.

2.6. Subjective Norms

Subjective norms, as described in the Theory of Reasoned Action by Fishbein and Ajzen, play a significant role in shaping behavioral intentions and actions. This factor is influenced by peer pressure, social expectations, and community influence, ultimately guiding individuals toward adopting or rejecting certain behaviors (Al-Swidi, Mohammed Rafiul Huque, Haroon Hafeez, & Noor Mohd Shariff, 2014). It also encompasses the impact of social environments on intention formation and behavioral responses to specific situations. Subjective norms are influenced by the values and expectations imparted by close relationships, such as family and friends (Pham, 2019). These influential figures shape initial thoughts, feelings, and opinions about specific situations, ultimately impacting attitudes and intentions related to behavioral choices (Fontes, Moreira, & Carlos, 2021). The Theory of Reasoned Action suggests that an individual's concern about others' opinions can strongly affect their actions. Subjective norms for a specific behavior are shaped by the beliefs and perceptions of a person's social circle, influencing their behavioral intentions (Harb et al., 2021).

2.7. Consumer Perceived Environmental Concern

An environmentalist's concern drives efforts to find and implement solutions for environmental protection, influencing consumers' behavior in green purchasing (Pacho, 2020). Green consumers have positive attitudes towards natural products, leading to green purchase intentions and a healthy lifestyle. Environmental concerns are predictive of consumer purchase decisions. The study by Rausch (2021), showed a strong link between environmental concern and green purchasing behavior in young consumers. Individuals with high environmental concerns were found to have strong intentions towards choosing green brands and making sustainable purchases (Fontes, Moreira, & Carlos, 2021).

2.8. Green Product Knowledge

The impact of knowledge on purchase intention and decisions in research is still a topic of debate with inconsistent findings (Suki, 2016). According to Wang, higher consumer knowledge about the environment and its relationship with products leads to increased interest in buying environmentally friendly products (H. Wang, Ma, & Bai, 2019). Previous studies have indicated that consumers who possess extensive knowledge about environmentally friendly products, including their sustainable development and potential to mitigate global environmental challenges, are more likely to purchase these green products (J. Wang et al., 2019). Knowledge about environmentally friendly products positively affects customers' decision to purchase them. Thus, it can be concluded that familiarity with green products significantly influences customer purchasing behavior (Zhang & Chabay, 2020).

2.9. Research Gap

The study on green purchasing behavior in young earners in Pakistan suggests investigating purchasing behavior in different parts of the country (Soomro et al., 2020). A literature review found that while attitudinal practices were prioritized in purchasing decisions, there was limited study on actual customer behavior towards environmentally friendly purchasing (Wijekoon & Sabri, 2021). The study suggests integrating consumer behavior factors into future research to assess actual environmental concerns and responsibility. Majeed et al. (2024), found that environmental concerns negatively impact the pricing and social status of consumers who buy green products in Pakistan. It further suggested the need to explore environmental concerns and purchase as contributors. Zhuang, Luo, and Riaz (2021) study on purchasing intentions identified subjective norms as strong indicator however, it was less in influence as compared to attitude. Subjective norms are crucial in developing an individual ability towards purchase, while attitude is important in fostering willingness. Concari (2023) in his study attempted to investigate the integrated effect of TRA along with TPB for

understanding of purchasing behavior with reference to green product, however it lacks the applicability in analyzing the actual behavioral components.

2.10. Hypothesis Development and Framework

2.10.1. Green Purchase Intention-Consumer Green Purchasing Behavior

The Theory of Reasoned Action states that attitudes and subjective norms independently influence an individual's intention to perform a specific behavior, predicting the likelihood of the actual behavioral outcome (Kumar, 2017). Intention is a stronger indicator of actual behavior than the behavior itself. Research on environmentally-friendly buying intentions suggests that the inclination to choose green products significantly influences the likelihood of making green purchases (Harb et al., 2021). Consumers were influenced by their self-assessment of the impact of buying non-green products and showed a strong inclination towards environmentally friendly behavior, such as promoting recycling, reusing, and using renewable products (Kamalanon, Chen, & Le, 2022).

H1: Green Purchasing Intention has a strong impact on Consumer Green Purchasing Behavior

2.10.2. Attitude towards Environment-Green Purchase Intention-Consumer Green Purchasing Behavior

Attitudes play a significant role in predicting consumer choices and influencing decisions about specific products (Shamila Khan & Mohsin, 2017). Sarah Khan and Abbas (2023) further discusses how attitudes serve as an influential factor in the development of intentional behaviors, while Rausch (2021), concludes that positive attitudes contribute to the reinforcement of behavioral intentions. Research by Y.-S. Chen, Chang, and Chen (2020), also supports the idea that consumers' resistant perspectives toward certain behaviors are shaped by their positive attitudes, further strengthening individual behavioral intentions.

H2a: Attitude towards Environment has a strong impact on Green Purchasing Intention
H2b: Green Purchasing Intention mediates the relationship between attitude towards Environment and Consumer Green Purchasing Behavior

2.10.3. Subjective Norms-Green Purchase Intention-Consumer Green Purchasing Behavior

Subjective norms, driven by the expectations of close associates such as family, friends, and office groups, significantly influence consumer decision-making. Research suggests that peer pressure and marketing strategies play a key role in shaping individual consumption intentions (Mazhar et al., 2022). The purchase decisions of consumers are found to be influenced by the preferences of their peers, elders, cultural influences, and societal associations. Strong positive subjective norms result in positive consumer behavior towards product purchase while weak or negative norms can have a detrimental impact on both individual buyers and their community as a whole. Overall, subjective norms within society are predictive of consumer purchasing behavioral intentions (Majeed et al., 2024).

H3a: Subjective Norms has strong relationship with green purchase intentions.
H3b: Green Purchasing Intentions mediates between the relationship of Subjective Norms and Consumer (Green) Purchasing Behavior

2.10.4. Consumer Perceived Environmental Concerns-Green Purchase Intention-Consumer Green Purchasing Behavior

Consumer perception of environmental concern influences the willingness to buy eco-friendly products. Short-term utility considerations can diminish green purchasing behavior when environmental concerns are low, while high environmental awareness leads to greater consideration of long-term benefits for the environment and health, resulting in increased green purchasing behavior (Majeed et al., 2024). Environmental consciousness promotes eco-friendly behaviors and green attitudes to contribute to a healthier environment. It is believed that environmental awareness influences the intention and actual behavior of making environmentally friendly purchases. Companies use environmental concerns to drive positive green purchasing behaviors based on consumer intentions (Elgammal, 2023).

H4a: Consumer Perceived Environmental Concerns have a strong relationship with Green Purchase Intention

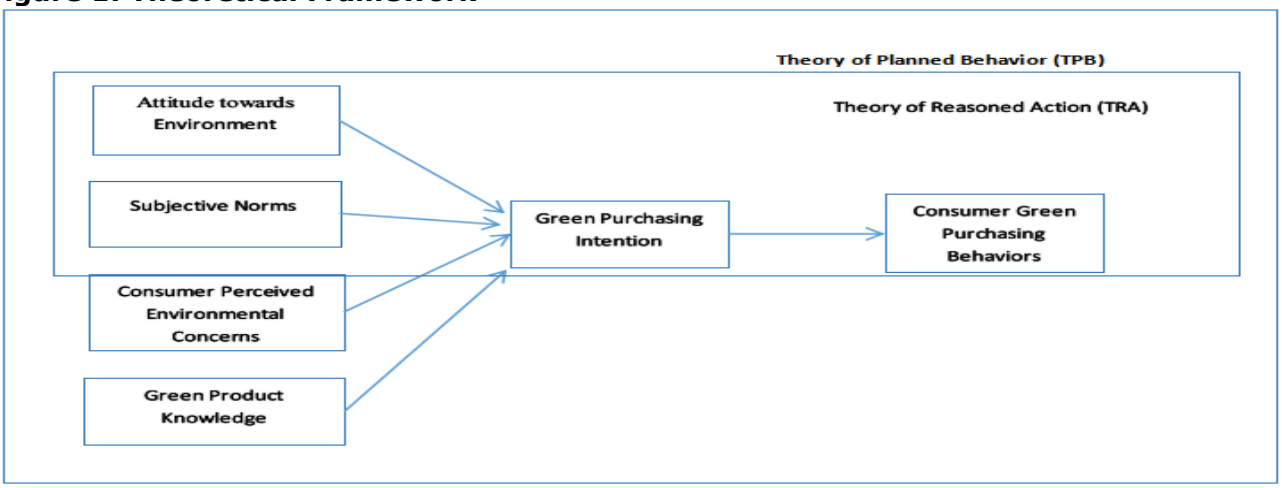
H4b: Green Purchasing Intention mediates the relationship between Consumer Perceived Environmental Concern and Consumer Green Purchasing Behavior

2.10.5. Green Product Knowledge-Green Purchase Intention-Consumer Green Purchasing Behavior

Consumers and organizations both consider knowledge to be highly important. When consumers have access to accurate information about environmental issues, it can drive the development of products that prioritize conveying knowledge (H. Wang, Ma, & Bai, 2019). Likewise, when fully informed products are brought to market, this can enhance intentions to make environmentally conscious purchases (Isac, Javed, Radulescu, Cismasu, Yousaf, & Serbu, 2024). On the contrary, Mahasan (2024) has indicated that green product knowledge may not directly contribute to purchase intention and decisions unless consumers trust the product brand.

H5a: Green Product Knowledge has a strong impact on Green Purchasing Intention

Figure 1: Theoretical Framework



3. Methodology

This is a study using survey methods to gather data from middle-income earners in Multan. The questionnaires will be distributed through face-to-face, drop-and-collect, online forms, and emails in crowded areas such as business malls and workplaces. This approach aims to capture purchasing behavior and obtain consumer responses for accurate data collection. The study focuses on 540 middle-class income earners in Multan who are knowledgeable about green environments and purchases (Majeed et al., 2024). The researcher plans to reach this population through private and public organizations in the area. The study has utilized a non-probability sampling technique. Through this method, the researcher has an opportunity to draw samples form the vast population based on the availability of respondents. The reason for selecting this sampling technique is it made easier approach to respondents without any intention of generalizing results (Stratton, 2021).

3.1. Operational Definition

Consumer Green Purchase Behavior: It is defined as the consumer action triggered by environmental concerns that lead to the purchase and consumption of environmentally friendly products (Majeed et al., 2024).

Green Purchase Intention: It is defined as the likelihood that a consumer will make an environmentally conscious purchase decision, taking into account factors such as environmental concerns, attitudes, and perceived product attributes (Zhuang, Luo, & Riaz, 2021). It is measure by five items adopted from study of Kilbourne and Pickett (2008).

Attitude towards Environment: It is defined as the general positive or negative perceptions, feelings of a consumer towards the natural environment and environmental issues (Wijekoon & Sabri, 2021). It is measure by 08 items adopted from study of Kilbourne and Pickett (2008).

Subjective Norms: It is defined as the peer pressure to purse green purchase behaviors Wijekoon and Sabri (2021) and is measure by 04-items from study of Paul, Modi, and Patel (2016).

Consumer Perceived Environmental Concern: It is the extent to which a consumer expresses its concern towards environment and its preservation.

Green Product Knowledge: It is defined as the understanding of environmental implications of a product's production, composition and life cycle which enables consumers to make informed purchase decisions (Isac et al., 2024).

4. Data Analysis

4.1. Demographic Information

The control variables used to collect demographic data were Age, Gender, Occupation, Level of Education, Marital Status and Level of Income.

4.1.1. Gender

In this study there were total 540 respondents among which 290 were males and 250 were females.

4.1.2. Occupation

540 respondents were divided into 4 categories of occupation; 144 private sector employees, 162 public sector employees, 111 students and 123 respondents belong to other categories of employment. The maximum number of responses were collected from public sector employees.

4.1.3. Level of Income

To assess income status, the participants were categorized into four groups based on their earnings: those earning below 80,000; those earning between 80,000 and 160,000; those earning between 160,001 and 220,000; and those earning above 220,000. The study found that there were 106 respondents in the first group, 288 in the second group, 61 in the third group, and finally 85 in the fourth group. It is evident from these findings that the highest number of respondents fell within the range of earnings of 80-160 thousand.

4.1.4. Marital Status

Respondents were classified into three categories based on their marital status: single, married, and others. The survey revealed that there were 230 single participants, 247 married participants, and 63 respondents in the "others" category.

4.1.5. Level of Education

Respondents' educational levels were classified into four categories: individuals holding a Bachelor's Degree, those with a Post-Graduate Degree, holders of Professional Degrees, and Others. A total of 182 respondents held Bachelor's Degrees, 159 had Post-Graduate Degrees, 96 had Professional Degrees, and 100 belong to the 'Others' category. Consequently, the majority of the respondents held Bachelor's Degrees.

4.1.6. Age

The participants were categorized into 5 age groups: equal to or below 18, 19-25, 26-32, 33-39, and above or equal to 40. There were a total of 24 respondents in the youngest group, while the largest number of respondents fell within the age range of 26-32. The second highest number of respondents belonged to the age category of 33-39. The summarized demographic statistics show that among 540 maximum responses were collected by age group of 26-32, public sector employees, respondents that had a bachelor's degree, majority of married couples have responded to this study and the maximum earning capacity of respondents was 80-160 thousand respondents.

4.2. Inferential Statistics

4.2.1. Normality Test

Skewness and Kurtosis critical values lie within the range of (+1, - 1). In table 4.3, the skewness statistic ranges from 0.068 to 0.478, meeting the specified criteria. Similarly, for

kurtosis, the highest value is indicated as 199 while the lowest is reported as 0.632; this suggests a consistent distribution of data.

Table 1: Normality Test (Skewness and Kurtosis)

	Skewness		Kurtosis	
	Statistics	**St.Error**	**Statistics**	**St.Error**
CGPB	.640	.150	.966	.210
PI	.788	.150	.809	.210
ATE	.582	.150	.210	.210
SN	.454	.150	.250	.210
GPK	.923	.150	.645	.210
CPEC	.623	.150	.900	.210

Source: Table 1 from SPSS

For multi-colliearity statistics values less than then 10 are considered to be a good fit as stated by Hair et al., (2005).

Table2: Multi-Collinearity Test

Constructs	VIF
PI	6.313
ATE	3.822
SN	2.093
GPK	6.091
CPEC	4.021

Source: Table 2 from SPSS

Table 3: Measurement Properties of Model

Construct	Items		Com.	λ	%Var	AVEs	√AVEs	CR	α
CGPB	CGPB1	.644	.732	8.205	0.707	0.716	0.912	0.783	
	CGPB2	.626	.712						
	CGPB3	.777	.764						
	CGPB4	.821	.806						
	CGPB5	.609	.702						
PI	PI1	.692	.658	9.001	0.812	0.805	0.892	0.712	
	PI2	.589	.602						
	PI3	.707	.692						
	PI4	.698	.807						
	PI5	.804	.840						
ATE	ATE1	.812	.790	9.212	0.865	0.829	0.902	0.798	
	ATE2	.790	.744						
	ATE3	.842	.725						
	ATE4	.891	.804						
	ATE5	.826	.798						
	ATE6	.868	.812						
	ATE7	.721	.707						
SN	SN1	.787	.781	8.498	0.666	0.904	0.941	0.821	
	SN2	.861	.761						
	SN3	.725	.770						
	SN4	.684	.805						
GPK	GPK1	.604	.724	6.231	0.724	0.812	0.790	0.850	
	GPK2	.787	.761						
	GPK3	.800	.790						
	GPK4	.754	.777						
	GPK5	.690	.708						
	GPK6	.718	.780						
CPEC	CPEC1	.892	.660	6.640	0.819	0.906	0.946	0.916	
	CPEC2	.840	.745						
	CPEC3	.896	.802						
	CPEC4	.768	.821						
	CPEC5	.842	.863						
	CPEC6	.818	.850						
KMO						0.877			
Bartlett Test						0.000			

Source: Table 3 from SPSS

The factor loadings are all above 0.50, as required for the analysis (Chinomona, Lin, Wang, & Cheng, 2010). The value of composite reliability should be above 0.60 for all variables, and in this case, the values of Composite Reliability for all variables exceed 0.60

(Nunnally, 1978). The Average Variance Extracted should range from 0.7 to 0.8 and always be greater than 0.50 for all the variables under study. The reliability of Cronbach's alpha should be > 0.60 and commonalities should be > 0.5 (Hair, 2010). The obtained measures, including Bartlett's test of sphericity and KMO confirms the data's adequacy for factor analysis. KMO value 0.877 indicates ample sample size for analysis (Kaiser, 1974).

Table 4: Direct Effect of Model

Independent Variable	Dependent Variable	Estimates	T	P	Status
ATE	CGPB	0.826	38.210	0.000	Supported
SN	CGPB	0.611	14.388	0.000	Supported
GPK	CGPB	0.724	31.316	0.000	Supported
CPEC	CGPB	0.424	6.636	0.000	Supported
PI	CGPB	0.742	33.428	0.000	Supported

Source: Table 4 from PLS

For direct relationship developed among the variables the t value of the relationship should be greater than 1.96. For all the direct relationships developed among the variables, the t value is greater than 1.96 which means the hypothesis of direct relationship among variables is accepted.

Table 5: Indirect Effect of Model

Relationships	Estimates	T	Status
ATE → PI → CGPB	0.270	0.000	Supported
SN → PI → CGPB	0.424	0.000	Supported
GPK → PI → CGPB	0.539	0.000	Supported
CPEC → PI → CGPB	0.211	0.000	Supported

Source: Table 5 from PLS

For the indirect relationships developed among the variables, the t value is an indication of the level of relationship developed. And it should be greater then 0.05. In this analysis, all the indirect relationship developed are accepted as there t value is above 0.05.

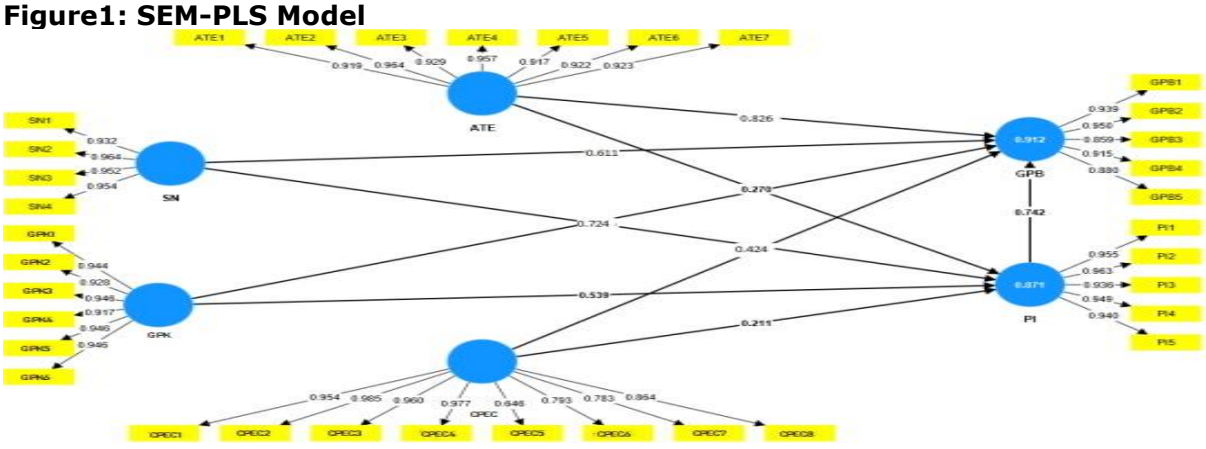
Table 6: Model Fitness Indices

	Saturated Model	Estimated Model
RMSEA	0.06	0.88
SRMR	0.04	0.05
Chi-Square	2,3219.3923	2,634.105
NFI	0.93	0.93

Source: Table 1 from PLS

According to, the average square residual value (SRMR) is substantially smaller than the 0.08 value regarded as most beneficial for running subsequent models (Hair & Black, 2010). The Chi square value should be more than 0.05. (Kline and colleagues, 1998). It is 2,428.402 in this table. The RMSEA cannot be more than 0.08. It is 0.085 in this table, which is considered acceptable (Kline, 2005). The NFI cannot be less than or equal to.90 (Hair & Black, 2010).

Figure1: SEM-PLS Model



5. Results

Table 7

Relationships	Status
ATE → PI → CGPB	The direct and indirect relationship of variables is significant and supported
SN → PI → CGPB	The direct and indirect relationship of variables is significant and supported
GPK → PI → CGPB	The direct and indirect relationship of variables is significant and supported
CPEC → PI → CGPB	The direct and indirect relationship of variables is significant and supported

6. Discussion

The results of this study indicate that consumer intentions are strong predictors of consumer green purchasing behaviors as stated by TRA (Zahan, Chuanmin, Fayyaz, & Hafeez, 2020). According to some studies, there is a discrepancy between customers' expressed intention to purchase green products and their actual behavior. However, Majeed et al. (2024), argues that the relationship established between purchasing intention and behavior does not completely capture the complexity of green purchasing intentions and actual actions, leading to a gap between intention and behavior in green purchases (J. Wang et al., 2019). An intention predictor attitude towards the environment is also considered to be a strong predictor but there are further dimensions discussed in the findings of Trivedi and Kishore (2020), stating that attitudes both internal and external have different impacts on purchasing intentions. Subjective norms are another strong and common predictor of intention that includes peer pressures and societal norms that directly impact individual green purchasing behaviors (Sabbir & Taufique, 2022). The volunteer green concerns of consumers are another important factor that shows a strong relationship with purchasing intention. As stated by Lou and Li (2021), environmental concern is a consumer catalyst that influences green product switching intentions. In this study, green product knowledge has also shown a strong impact on consumer intentions as also stated earlier consumer intentions without proper awareness and knowledge cannot develop strong green purchase behaviors (Isac et al., 2024). All these predicting variables have a strong impact on green purchase intentions that enforce a combined impact on consumer green purchase behavior.

7. Conclusion

The study assessed the influence of consumer environmentally-friendly buying behavior by considering intentions, attitudes, subjective norms, green product knowledge, and perceived environmental concerns using TPB and TRA frameworks. The developed model evaluated the green purchasing behavior of middle-income earners. All variables displayed a positive correlation and impact on consumer environmentally-friendly buying behavior. The findings revealed that these measuring variables directly relate to the mediating variable (green purchasing intention), which in turn has a direct connection with consumer environmentally-friendly buying behavior. This suggests that for middle-income earners in Multan, their green purchasing intentions are shaped by their favorable attitude towards the environment, subjective norms, knowledge about green products, and perceived environmental concerns; consequently influencing their purchasing behaviors.

7.1. Theoretical Implications

The connection between behavioral intention explored in this study is a familiar concept for researchers. However, the theoretical framework developed has introduced novel directions for researchers. This study has established a distinctive relationship among variables where independent factors such as attitude towards the environment, subjective norms, green product knowledge, and consumer-perceived environmental concerns do not directly influence consumer green purchasing behavior. Instead, these variables exert their significant positive impact through an intention-behavior linkage model. Despite its longstanding presence, this intention-behavior model continues to have unique and varied impacts on consumer decision-making across different situations.

7.2. Practical Implication

In marketing sector, this model has a great importance and will provide new dimensions to the producers and sellers. The trend of green products and green consumption is not new but it is still at its infancy stage in Multan. With this model, the marketers and business community can make a better understanding about the consumer decision-making factors and can further strategize their marketing approach through application of those factors. Green knowledge is an important factor that could help the marketers in creating green awareness and environment protecting awareness among the young middle-income earners and purchasers.

7.3. Limitations and Future Directions

The study examined the purchasing behavior of middle-income earners in the Multan region, but future research could encompass larger markets in Pakistan to capture a broader range of behaviors. Further studies could delve into corporate employees' purchasing behavior and explore how green behaviors and products impact markets and marketers. There is significant room for further research to understand the influence of income level on green product knowledge and subjective norms on purchasing intentions. Exploring additional theoretical frameworks may provide new insights into understanding green consumers' behavior.

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