ENCOURAGING GREEN CONSUMPTION IN PAKISTAN'S TEXTILE EXPORT MARKET: THE ROLE OF BEHAVIORAL CONTROL AND ENVIRONMENTAL CONCERN IN SUSTAINABLE APPAREL DEMAND

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Abstract
This research investigates the behavioral mechanisms that shape green consumption within Pakistan's textile export market, with particular emphasis on sustainable apparel demand. Despite Pakistan's strategic position as a leading textile exporter, the industry continues to face mounting environmental challenges due to intensive resource consumption, pollution, and weak domestic and international demand for eco-friendly apparel. While sustainability initiatives are increasingly promoted at the production level, consumer-driven demand for environmentally responsible apparel remains inconsistent, limiting the long-term effectiveness of green transformation efforts. Anchored in the extended Theory of Planned Behavior, this study examines how behavioral determinants—namely attitude, subjective norms, perceived behavioral control, personal moral norms, environmental concern, and perceived consumer effectiveness—influence consumers' purchase intentions toward sustainable apparel. The research adopts a quantitative approach to empirically assess the relative strength of these factors in shaping pro-environmental purchasing decisions within the context of Pakistan's textile export ecosystem. Data are collected from consumers with exposure to textile and apparel markets using structured survey instruments, and the proposed conceptual model is tested using robust statistical techniques. The findings aim to clarify why high environmental awareness does not consistently translate into sustainable purchasing behavior and to identify the behavioral barriers that hinder green consumption. By highlighting the pivotal role of perceived behavioral control and environmental concern, the study provides nuanced insights into how consumers' perceived ability, responsibility, and effectiveness shape sustainable demand. The research contributes theoretically by extending behavioral consumption literature to a developing economy export-oriented context and practically by offering actionable guidance for textile exporters, policymakers, and sustainability-driven marketers. Ultimately, this study supports the development of demand-side strategies that complement sustainable production initiatives, enabling Pakistan's textile sector to align economic competitiveness with environmental responsibility and long-term sustainability goals.

INTRODUCTION
The global textile and apparel industry has emerged as one of the most environmentally intensive industrial sectors due to its extensive reliance on natural resources, high energy consumption, chemical usage, and waste

generation. Over the past decade, growing awareness of climate change, environmental degradation, and unsustainable production systems has intensified pressure on textile-producing nations to transition toward environmentally responsible practices. As sustainability becomes a defining criterion in international trade and consumer markets, textile-exporting countries are increasingly evaluated not only on product quality and cost competitiveness but also on environmental compliance and ethical responsibility. Within this evolving global landscape, Pakistan's textile export market occupies a strategically significant position, contributing substantially to national economic growth, employment generation, and foreign exchange earnings. However, despite its economic importance, the sector faces mounting sustainability challenges that threaten its long-term viability and competitiveness in environmentally conscious global markets.

Pakistan's textile industry is deeply embedded in export-oriented manufacturing, supplying apparel and textile products to regions where environmental regulations and sustainability expectations are becoming increasingly stringent. International buyers, global brands, and regulatory institutions now demand transparency, eco-certifications, and sustainable sourcing practices from exporters. In response, many textile firms in Pakistan have begun adopting cleaner production technologies, waste reduction initiatives, and compliance-driven sustainability measures. While these supply-side interventions are essential, they represent only one dimension of sustainability transformation. The demand-side dimension—particularly consumer willingness to support and purchase sustainable apparel—remains underdeveloped and insufficiently understood within the Pakistani context. Without parallel growth in green consumption behavior, sustainability initiatives risk remaining symbolic rather than transformative.

Green consumption refers to consumer behavior that prioritizes environmentally responsible products and practices, reflecting concern for ecological preservation, ethical responsibility, and long-term sustainability. In theory, rising environmental awareness should encourage consumers to favor eco-friendly apparel over conventionally produced alternatives. In practice, however, a persistent gap exists between environmental concern and actual purchasing behavior. Many consumers express positive attitudes toward sustainability yet fail to translate these attitudes into consistent green consumption decisions. This intention–behavior gap is particularly pronounced in developing economies, where structural, economic, and behavioral constraints often override environmental considerations. Understanding this gap is critical for Pakistan's textile export market, where sustainable demand remains fragile despite increasing exposure to global sustainability discourse.

Behavioral theories provide a valuable lens for examining why environmentally concerned consumers do not always act in environmentally responsible ways. Among these frameworks, the Theory of Planned Behavior offers a comprehensive explanation of how individual attitudes, perceived social expectations, and perceived control over behavior jointly shape purchase intentions. Extending this framework by incorporating environmental concern, personal moral norms, and perceived consumer effectiveness allows for a more nuanced understanding of green consumption behavior. These constructs recognize that consumers are influenced not only by their beliefs and social environment but also by their perceived ability to make a difference and their sense of moral responsibility toward environmental protection. In the context of sustainable apparel, such perceptions are particularly important, as consumers often question the effectiveness, affordability, and availability of eco-friendly clothing options.

Within Pakistan's textile export market, consumers' perceived behavioral control plays a pivotal role in determining sustainable apparel demand. Factors such as price sensitivity, access to sustainable products, information asymmetry, and trust in environmental claims can significantly shape consumers' perceived ability to engage in green purchasing. Even when environmental

concern is high, consumers may refrain from purchasing sustainable apparel if they perceive it as financially burdensome, inaccessible, or ineffective in addressing environmental problems. Similarly, perceived consumer effectiveness—the belief that individual purchasing decisions can contribute meaningfully to environmental improvement—can strengthen or weaken the link between concern and action. When consumers believe their choices matter, they are more likely to support sustainable products despite constraints.

Environmental concern itself remains a foundational driver of green consumption behavior, reflecting individuals' awareness of ecological issues and their willingness to support environmental protection. However, concern alone is insufficient to stimulate sustained behavioral change. In export-oriented textile markets such as Pakistan's, environmental concern must be complemented by supportive behavioral conditions, moral motivations, and enabling market structures. This interplay highlights the importance of examining green consumption as a multidimensional behavioral phenomenon rather than a purely attitudinal outcome. By focusing on sustainable apparel demand, this study situates consumer behavior within the broader sustainability transition of the textile export sector, emphasizing the role of demand-side dynamics in reinforcing environmentally responsible production.

The significance of this research lies in its contextual and theoretical contribution. While extensive research on green consumption exists in developed economies, limited empirical attention has been given to export-driven developing economies such as Pakistan, where sustainability pressures are externally imposed yet internally constrained. This study addresses this gap by exploring how behavioral control and environmental concern interact with other psychological determinants to shape sustainable apparel demand in Pakistan's textile export market. By integrating behavioral theory with industry-specific realities, the research provides a grounded understanding of consumer-driven sustainability in a context marked by economic

constraints, evolving regulatory environments, and growing international scrutiny.

Ultimately, encouraging green consumption within Pakistan's textile export market requires more than awareness campaigns or compliance-based production reforms. It necessitates a behavioral shift among consumers, supported by market accessibility, credible sustainability communication, and policies that empower individuals to act on their environmental values. This study contributes to this objective by identifying the behavioral mechanisms that can bridge the gap between environmental concern and sustainable purchasing behavior. Through this lens, sustainable apparel demand is positioned not merely as a market preference but as a strategic lever for aligning Pakistan's textile export industry with global sustainability expectations and long-term environmental responsibility.

1.1 Problem Statement

The textile export industry of Pakistan occupies a central position in the national economy, contributing significantly to gross domestic product, employment generation, and foreign exchange earnings. Over time, this sector has become deeply integrated into global supply chains, supplying apparel and textile products to international markets that increasingly emphasize sustainability, environmental responsibility, and ethical production standards. While Pakistan's textile exporters have made gradual progress in adopting cleaner production technologies and complying with international environmental certifications, these efforts are largely driven by external buyer requirements rather than internally sustained market demand. As a result, sustainability within the sector remains production-centric, with limited emphasis on consumer-driven demand for eco-friendly apparel. This imbalance highlights a critical structural problem: sustainable production initiatives cannot achieve long-term impact without corresponding growth in sustainable consumption behavior.

Globally, green consumption is recognized as a vital mechanism for reinforcing environmental sustainability by encouraging markets to reward responsible production practices. However, in

Pakistan, the demand for sustainable apparel remains weak, fragmented, and inconsistent. Consumers may express concern about environmental degradation, pollution, and climate-related issues, yet these concerns often fail to translate into actual purchasing decisions that support eco-friendly apparel. This disconnect between expressed environmental concern and real consumption behavior represents a fundamental challenge for the textile export market. Without strong and stable demand for sustainable products, exporters face limited incentives to invest deeply in green innovation, cleaner technologies, and environmentally responsible supply chains beyond minimum compliance requirements.

One of the core issues underlying this problem is the behavioral nature of green consumption. Sustainable apparel purchasing is not solely determined by awareness or positive attitudes toward the environment; rather, it is shaped by a complex interaction of psychological, social, and control-related factors. In the Pakistani context, consumers frequently encounter constraints that weaken their ability or willingness to purchase sustainable apparel. These constraints include limited availability of eco-friendly clothing, higher perceived prices, lack of credible sustainability information, and uncertainty regarding the actual environmental impact of individual purchasing decisions. Consequently, even environmentally concerned consumers may opt for conventional apparel due to perceived inconvenience or inefficacy, reinforcing unsustainable consumption patterns.

Perceived behavioral control emerges as a particularly critical factor in this context. Consumers' belief in their capacity to engage in green purchasing—considering affordability, access, and personal capability—plays a decisive role in shaping purchase intentions. In Pakistan's textile market, sustainable apparel is often perceived as less accessible or economically impractical for the average consumer, which weakens perceived behavioral control. When individuals believe that sustainable choices are beyond their financial or practical reach, environmental concern alone is insufficient to drive behavioral change. This highlights a central problem: without addressing consumers' perceived ability to act sustainably, green consumption initiatives are unlikely to gain traction.

Environmental concern, although increasingly present in public discourse, also exhibits limitations in influencing sustainable apparel demand. Many consumers acknowledge environmental problems in abstract terms but struggle to connect these issues with their everyday purchasing decisions. In developing economies, immediate economic considerations often outweigh long-term environmental concerns, leading to consumption choices that prioritize price and convenience over sustainability. In Pakistan, where income disparities and cost sensitivity remain prominent, environmental concern does not consistently function as a strong motivator for green purchasing. This weak translation of concern into action raises questions about how environmental awareness interacts with other behavioral determinants in shaping sustainable consumption.

Another dimension of the problem lies in consumers' perceived effectiveness of their individual actions. When consumers doubt that their personal purchasing choices can meaningfully contribute to environmental improvement, they are less likely to engage in green consumption. This perception is particularly relevant in large-scale industries such as textiles, where environmental damage is often viewed as the responsibility of corporations or governments rather than individual consumers. In Pakistan's textile export market, this sense of limited personal influence can discourage consumers from supporting sustainable apparel, even when they recognize the environmental benefits of doing so. As a result, sustainable consumption remains marginal rather than mainstream.

Social and moral factors further complicate the issue. While social norms and moral responsibility can encourage ethical consumption, their influence varies across cultural and economic contexts. In Pakistan, sustainability-oriented consumption has not yet fully evolved into a socially reinforced norm. Eco-friendly apparel

purchasing is often perceived as optional rather than obligatory, reducing the social pressure to adopt green consumption habits. Similarly, personal moral norms related to environmental responsibility may exist at a conceptual level but lack sufficient reinforcement through market structures and social validation. This weak moral and normative support contributes to the persistence of unsustainable consumption patterns.

The absence of comprehensive empirical research focused on these behavioral challenges within Pakistan's textile export market exacerbates the problem. Much of the existing sustainability research is concentrated in developed economies or focuses primarily on production-side practices. Limited attention has been given to understanding consumer behavior in export-oriented developing economies, where sustainability pressures are externally imposed and internally constrained. Without empirical evidence identifying the behavioral drivers and barriers influencing sustainable apparel demand, policymakers and industry stakeholders lack the necessary insights to design effective interventions that stimulate green consumption.

Therefore, the central problem addressed by this study is the inadequate understanding of how behavioral factors—particularly perceived behavioral control and environmental concern—shape sustainable apparel demand in Pakistan's textile export market. The lack of consumer-driven demand undermines the long-term effectiveness of sustainability initiatives and restricts the sector's ability to align with global environmental expectations. Addressing this problem requires a systematic examination of the psychological and behavioral mechanisms that influence green consumption, moving beyond surface-level awareness to uncover the deeper factors that enable or inhibit sustainable purchasing behavior. By identifying and analyzing these behavioral determinants, this research seeks to fill a critical gap in sustainability and consumer behavior literature. Understanding why environmentally concerned consumers do not consistently engage in green purchasing is essential for developing strategies that empower consumers, strengthen

sustainable demand, and support the environmental transformation of Pakistan's textile export industry. Without such understanding, sustainability efforts will remain fragmented, reactive, and insufficient to address the long-term environmental challenges facing the sector.

1.2 Objectives of the Study

The primary purpose of this study is to systematically examine the behavioral foundations that influence green consumption within Pakistan's textile export market, with a specific focus on sustainable apparel demand. As sustainability becomes an increasingly decisive factor in global trade and consumer markets, understanding the behavioral mechanisms that drive or hinder environmentally responsible purchasing has become essential. The objectives of this research are designed to address the demand-side gaps that currently limit the effectiveness of sustainability initiatives in Pakistan's textile sector. By focusing on consumer behavior rather than solely on production practices, this study aims to provide a comprehensive understanding of how sustainability can be strengthened through market-driven demand.

One of the central objectives of this research is to analyze the role of perceived behavioral control in shaping consumers' intentions to purchase sustainable apparel. Perceived behavioral control reflects individuals' assessment of their ability to perform a specific behavior, considering factors such as financial capability, product availability, access to information, and personal confidence in making sustainable choices. In Pakistan's textile export market, sustainable apparel is often perceived as less accessible or more costly, which may weaken consumers' perceived control and discourage green purchasing. This study seeks to explore how such perceptions influence purchase intention and whether enhancing perceived behavioral control can serve as a catalyst for increased green consumption.

Another key objective is to evaluate the influence of environmental concern on sustainable apparel demand. Environmental concern represents individuals' awareness of environmental problems and their level of emotional and cognitive

engagement with ecological issues. While environmental concern is widely acknowledged as an important antecedent of pro-environmental behavior, its direct impact on actual purchasing decisions remains inconsistent, particularly in developing economies. This research aims to assess whether environmental concern significantly motivates consumers in Pakistan to prefer sustainable apparel and how it interacts with other behavioral variables to shape green consumption behavior. By doing so, the study seeks to clarify the extent to which environmental awareness translates into actionable demand within the textile export context.

The study also aims to examine the role of consumer attitude toward sustainable apparel as a determinant of green consumption. Attitude reflects consumers' overall evaluation of eco-friendly apparel, including perceptions of quality, value, usefulness, and environmental benefit. Positive attitudes toward sustainable products are often assumed to lead to higher purchase intentions; however, this relationship may be weakened by practical constraints and market realities. This research objective focuses on understanding whether favorable attitudes toward sustainable apparel are sufficient to influence purchasing behavior in Pakistan's textile market or whether their effect is contingent upon other enabling factors.

In addition, the research seeks to investigate the influence of subjective norms on green consumption behavior. Subjective norms capture the perceived social pressure to engage or not engage in a particular behavior, shaped by the expectations of family members, peers, and society at large. In many cultural contexts, social approval plays a significant role in shaping consumption patterns. This study aims to determine whether social influence and perceived expectations from significant others contribute meaningfully to sustainable apparel purchasing decisions in Pakistan or whether green consumption remains primarily an individual-driven choice with limited social reinforcement.

Another important objective is to assess the impact of personal moral norms on consumers' intention to purchase sustainable apparel. Personal moral norms refer to individuals' internalized sense of responsibility and ethical obligation toward environmental protection. In the context of sustainability, moral considerations may encourage consumers to make environmentally responsible choices even in the absence of external pressure. This study aims to explore whether moral responsibility acts as a strong motivational force for green consumption in Pakistan's textile export market and how it complements or substitutes other behavioral determinants such as attitude and social norms.

The research further seeks to evaluate the role of perceived consumer effectiveness in shaping sustainable apparel demand. Perceived consumer effectiveness reflects individuals' belief that their personal actions can contribute to solving environmental problems. When consumers believe that their purchasing decisions matter, they are more likely to support eco-friendly products. This objective focuses on understanding whether Pakistani consumers perceive their sustainable apparel purchases as meaningful contributions to environmental protection and how this perception influences their purchase intentions within the textile export market.

Beyond examining individual behavioral variables, a broader objective of this study is to develop and empirically validate an integrated behavioral framework that explains green consumption behavior in Pakistan's textile export context. By extending established behavioral theory and incorporating multiple psychological and social determinants, the study aims to provide a holistic explanation of sustainable apparel demand. This objective supports the development of a context-specific model that reflects the unique economic, cultural, and market conditions influencing consumer behavior in Pakistan.

Another important objective is to generate practical insights for textile exporters, marketers, and policymakers seeking to promote sustainable consumption. By identifying the key behavioral drivers and barriers to green apparel purchasing, the study aims to inform the design of targeted marketing strategies, consumer education initiatives, and policy interventions that encourage environmentally responsible consumption. These

insights can support exporters in aligning sustainability investments with consumer expectations and enhancing the competitiveness of Pakistan's textile sector in environmentally conscious global markets.

Finally, the study aims to contribute to the academic literature on sustainability and consumer behavior by addressing a contextual gap in existing research. Much of the current literature focuses on developed economies or examines sustainability from a production-centric perspective. This research objective emphasizes the importance of demand-side analysis in a developing, export-oriented economy and seeks to enrich theoretical understanding by providing empirical evidence from Pakistan's textile export market. Through this contribution, the study aspires to support future research on green consumption and sustainability in similar economic contexts.

1.3 Research Questions

1.   How does perceived behavioral control influence consumers' intention to purchase sustainable apparel within Pakistan's textile export market?

2.   To what extent does environmental concern contribute to shaping green consumption behavior and sustainable apparel demand among consumers in Pakistan?

3.   How do behavioral factors such as attitude, subjective norms, personal moral norms, and perceived consumer effectiveness collectively affect consumers' pro-environmental purchase intentions in the textile sector?

4.   In what ways can behavioral insights be utilized to strengthen sustainable apparel demand and support environmentally responsible growth in Pakistan's textile export industry?

1.4 Significance of the Study

The significance of this study lies in its potential to advance academic understanding, inform industry practice, and support policy formulation related to sustainable consumption within Pakistan's textile export market. As environmental sustainability becomes a defining criterion in global trade and consumer expectations, the ability

of export-oriented industries to adapt depends not only on production-side reforms but also on the strength of demand for environmentally responsible products. This research responds directly to this need by focusing on the behavioral foundations of green consumption and by examining how psychological and social factors influence sustainable apparel demand in a developing economy context.

From an academic perspective, the study contributes meaningfully to the literature on sustainable consumption and consumer behavior by extending established behavioral frameworks to a context that remains underrepresented in empirical research. Much of the existing scholarship on green consumption is concentrated in developed economies, where institutional support, consumer awareness, and market access for sustainable products are relatively well established. In contrast, Pakistan's textile export market presents a distinct environment characterized by economic constraints, evolving sustainability norms, and externally driven environmental pressures. By empirically examining green consumption behavior in this setting, the study enriches theoretical understanding of how behavioral determinants operate under conditions of limited resources and emerging sustainability awareness. This contextual contribution enhances the generalizability and robustness of behavioral theories related to pro-environmental purchasing.

The study is also significant in its theoretical integration of multiple behavioral constructs to explain sustainable apparel demand. By simultaneously examining perceived behavioral control, environmental concern, attitude, subjective norms, personal moral norms, and perceived consumer effectiveness, the research provides a comprehensive explanation of green consumption behavior. This integrated approach moves beyond simplistic models that rely solely on awareness or attitude and instead recognizes the multidimensional nature of consumer decision-making. As a result, the study offers a more realistic and nuanced understanding of why environmentally concerned consumers may or may not engage in sustainable purchasing,

particularly in export-driven markets such as Pakistan's textile sector.

From an industry perspective, the findings of this research hold practical value for textile exporters, apparel manufacturers, and sustainability-focused marketers. Pakistan's textile industry is increasingly required to demonstrate environmental responsibility to maintain access to international markets. However, investments in sustainable production can be costly and risky if consumer demand remains uncertain. By identifying the behavioral factors that influence sustainable apparel purchasing, this study provides exporters with actionable insights into how demand can be strengthened through consumer-centered strategies. Understanding the role of perceived behavioral control, for example, can help firms design pricing, distribution, and communication strategies that reduce perceived barriers to green consumption and enhance consumers' confidence in choosing sustainable products.

The research is particularly valuable in highlighting the importance of demand-side sustainability as a complement to production-side reforms. While many textile firms focus on achieving environmental compliance through certifications and audits, these measures alone may not yield long-term competitive advantage without corresponding consumer support. By emphasizing sustainable apparel demand, the study underscores the need for exporters to align sustainability initiatives with consumer expectations and behavioral realities. This alignment can enhance brand credibility, improve market positioning, and support the transition toward value-added sustainable exports rather than low-margin, compliance-driven production.

From a marketing and communication standpoint, the study offers insights into how sustainability messages can be framed more effectively. By examining the influence of environmental concern and perceived consumer effectiveness, the research sheds light on how consumers interpret environmental information and whether they believe their purchasing decisions matter. These insights can inform the development of targeted communication strategies that emphasize both environmental impact and individual empowerment, thereby strengthening the motivational basis for green consumption. Such strategies are particularly relevant in markets where skepticism toward sustainability claims and limited trust in environmental labeling may undermine consumer engagement.

The study also holds significance for policymakers and regulatory institutions seeking to promote sustainable consumption and environmental responsibility. Policymakers often focus on regulating production practices and enforcing environmental standards, while consumer behavior receives comparatively less attention. This research demonstrates that consumer demand plays a critical role in reinforcing sustainability across the textile value chain. By identifying behavioral drivers and constraints, the study provides evidence that can support the design of policy interventions aimed at encouraging green consumption. These may include consumer education programs, incentives for sustainable purchasing, and initiatives that improve access to eco-friendly apparel.

Furthermore, the research aligns with broader national and international sustainability agendas by supporting the transition toward responsible consumption and production. Sustainable Development Goals emphasize the importance of reducing environmental impact through both supply-side efficiency and demand-side behavioral change. By focusing on sustainable apparel demand in Pakistan's textile export market, this study contributes to these objectives by offering insights into how consumer behavior can support environmental sustainability without undermining economic development. The findings can therefore inform national sustainability strategies that seek to balance industrial growth with ecological responsibility.

Another important aspect of the study's significance lies in its contribution to addressing the intention–behavior gap in green consumption. Many sustainability initiatives fail because they assume that awareness automatically leads to action. This research challenges that assumption by empirically examining the conditions under which environmental concern translates into

purchase intention. By highlighting the role of perceived behavioral control and other enabling factors, the study provides a foundation for designing interventions that bridge the gap between concern and action. This contribution is particularly relevant in developing economies, where structural barriers often limit consumers' ability to act on their environmental values.

Finally, the study is significant in its potential to stimulate future research in the area of sustainable consumption and export-oriented industries. By providing empirical evidence from Pakistan's textile sector, the research opens avenues for comparative studies across industries, regions, and cultural contexts. It also encourages further exploration of how behavioral and institutional factors interact to shape sustainability outcomes in developing economies. As such, the study not only addresses immediate research and policy needs but also contributes to the long-term development of sustainability scholarship.

In summary, the significance of this study extends across academic, industrial, and policy domains. By focusing on the behavioral foundations of sustainable apparel demand in Pakistan's textile export market, the research offers original insights that support theoretical advancement, inform practical decision-making, and contribute to broader sustainability objectives. Its emphasis on demand-side dynamics reinforces the importance of consumer behavior in achieving meaningful and lasting environmental change within export-driven industries.

1.5 Limitations of the Study

Although this study is carefully designed to examine the behavioral determinants of green consumption in Pakistan's textile export market, certain limitations are inevitable due to conceptual, methodological, and contextual constraints. Acknowledging these limitations is essential to ensure transparency, academic rigor, and realistic interpretation of the findings. These limitations do not undermine the value of the research; rather, they define its boundaries and provide direction for future scholarly inquiry.

One of the primary limitations of this study lies in its reliance on a cross-sectional research design.

The data are collected at a single point in time, which restricts the ability to observe changes in consumer behavior, attitudes, and perceptions over an extended period. Green consumption behavior is dynamic and may evolve in response to regulatory changes, market developments, environmental events, or shifts in social norms. As a result, the findings reflect consumers' behavioral intentions within a specific temporal context and may not fully capture long-term behavioral transformation. A longitudinal design could offer deeper insights into how environmental concern and perceived behavioral control develop and influence sustainable apparel demand over time; however, such an approach was beyond the scope of the current study.

Another important limitation relates to the focus on purchase intention rather than actual purchasing behavior. While purchase intention is widely recognized as a strong predictor of behavior, it does not always translate into real consumption actions. Consumers may express willingness to purchase sustainable apparel but fail to act on these intentions due to situational constraints such as price fluctuations, product unavailability, or competing priorities. This intention–behavior gap is particularly relevant in the context of green consumption, where ethical preferences may be overridden by practical considerations. Consequently, the study captures behavioral readiness rather than verified purchasing outcomes, which may limit the predictive accuracy of the results.

The contextual scope of the study also presents certain limitations. The research is confined to Pakistan's textile export market, which possesses unique economic, cultural, and institutional characteristics. Consumer behavior in this context is shaped by income sensitivity, evolving sustainability awareness, and externally driven environmental pressures from international buyers. While these contextual factors enhance the relevance of the study within Pakistan, they may limit the generalizability of the findings to other countries or industries with different market structures and sustainability dynamics. Therefore, caution should be exercised when applying the results to non-export sectors or to economies with

higher levels of environmental regulation and consumer purchasing power.

In addition, the study relies on self-reported data collected through structured questionnaires, which introduces the possibility of response-related biases. Respondents may overstate their environmental concern or sustainable purchase intentions due to social desirability or perceived expectations associated with environmentally responsible behavior. Although anonymity and confidentiality are emphasized to mitigate such bias, the risk of respondents providing socially favorable answers cannot be entirely eliminated. This limitation is common in behavioral research and may influence the strength of observed relationships between variables.

Several specific limitations can be summarized as follows:

- **Sampling Constraints:**

The study focuses on a defined group of consumers with exposure to textile and apparel markets. This sampling approach may not fully represent all demographic segments, particularly rural populations or consumers with limited access to sustainable apparel options.

- **Economic Sensitivity:**

The study does not explicitly control for macroeconomic factors such as inflation, income instability, or purchasing power variation, which can significantly affect apparel consumption decisions in developing economies.

- **Product Availability Factors**:

Differences in availability and visibility of sustainable apparel across regions and retail formats are not directly measured, even though they may influence perceived behavioral control.

- **Information Asymmetry:**

The research does not deeply examine the role of misinformation or skepticism regarding sustainability claims, which may affect consumer trust and purchasing decisions.

- **Regulatory Influence Exclusion:**

While the study acknowledges the broader regulatory environment, it does not empirically test the direct impact of government policies or enforcement mechanisms on green consumption behavior.

Another limitation relates to the theoretical boundaries of the study. Although the research adopts an extended behavioral framework that incorporates multiple psychological constructs, it does not include all possible factors influencing green consumption. Variables such as price perception, brand trust, environmental knowledge depth, and emotional attachment to sustainability-oriented brands are not explicitly examined. Including these factors could provide a more comprehensive understanding of sustainable apparel demand but would also increase model complexity beyond the intended scope of the research.

The study is also limited by its emphasis on consumer behavior rather than organizational or supply-chain-level dynamics. While the focus on demand-side sustainability is deliberate, sustainable consumption is influenced by interactions between consumers, firms, and institutions. Factors such as retailer commitment, brand transparency, and supply chain communication play an important role in shaping consumer perceptions. The exclusion of these organizational dimensions means that the study captures only one side of the sustainability equation.

Furthermore, cultural and social diversity within Pakistan presents another limitation. Consumer values, environmental awareness, and consumption patterns may vary significantly across regions, age groups, and socioeconomic classes. Although the study attempts to capture general behavioral trends, it does not conduct detailed subgroup analyses to explore these variations. As a result, nuanced differences in green consumption behavior among specific population segments may remain unexplored.

Despite these limitations, the study maintains strong internal consistency and theoretical coherence. The selected variables are well-established in sustainability and consumer behavior literature, and the research design is appropriate for addressing the stated objectives. The limitations identified above provide important context for interpreting the findings and underscore the need for cautious generalization.

In conclusion, while this study offers valuable insights into the behavioral drivers of sustainable apparel demand in Pakistan's textile export market, it is constrained by methodological, contextual, and theoretical boundaries. Recognizing these limitations strengthens the credibility of the research and highlights opportunities for future studies to expand upon the current framework. By addressing these limitations, subsequent research can further refine understanding of green consumption and contribute to the development of more effective sustainability strategies.

1.6 Scope of the Study

The scope of this study defines the conceptual, contextual, and methodological boundaries within which the research is conducted. Clearly outlining the scope is essential to ensure that the investigation remains focused, coherent, and aligned with its stated objectives while avoiding overgeneralization of the findings. This research is specifically designed to examine green consumption behavior in relation to sustainable apparel demand within Pakistan's textile export market, with a strong emphasis on behavioral determinants rather than technical or production-oriented factors.

Conceptually, the study is scoped around understanding consumer behavior through a behavioral and psychological lens. It focuses on key behavioral constructs—perceived behavioral control, environmental concern, attitude, subjective norms, personal moral norms, perceived consumer effectiveness, and purchase intention—to explain sustainable apparel demand. These constructs are examined as interrelated components of an extended behavioral framework that seeks to explain why consumers choose or avoid eco-friendly apparel. The scope intentionally excludes production efficiency metrics, technological innovation in textile manufacturing, and supply chain operational performance, as these areas fall outside the primary objective of analyzing demand-side sustainability. By narrowing the focus to behavioral determinants, the study provides depth and clarity in explaining green consumption patterns rather than

attempting to address all dimensions of sustainability simultaneously.

From a contextual perspective, the study is confined to Pakistan's textile export market. Pakistan is selected due to its strategic importance as a major textile exporter and its increasing exposure to global sustainability requirements imposed by international buyers and regulatory bodies. The research concentrates on consumers who are aware of, exposed to, or influenced by textile and apparel markets linked to export-oriented production. While the findings may offer insights applicable to other developing economies with similar export structures, the study does not claim universal applicability across all national or industrial contexts. Cultural, economic, and regulatory differences may limit the direct transferability of results to non-export sectors or countries with different consumption dynamics.

The scope of the study is further limited to sustainable apparel as the product category of interest. Sustainable apparel refers to clothing products that are perceived by consumers as environmentally responsible due to factors such as reduced environmental impact, ethical sourcing, or eco-friendly materials. The study does not differentiate extensively between specific types of sustainable apparel, such as organic cotton garments or recycled fabric clothing, as the primary focus is on consumer perception and intention rather than technical product attributes. This approach allows the research to capture general behavioral tendencies toward sustainability without being constrained by product-specific variations.

Methodologically, the study adopts a quantitative research approach to analyze relationships among behavioral variables. Data are collected using structured survey instruments designed to measure consumers' perceptions, attitudes, and intentions related to sustainable apparel. The scope is limited to self-reported measures of behavioral intention rather than observed purchasing behavior. While this approach is appropriate for examining psychological determinants, it does not capture post-purchase behavior or long-term consumption patterns. Experimental designs, qualitative interviews, or

ethnographic methods are beyond the scope of this research, as the primary objective is to test theoretical relationships within a structured analytical framework.

The geographical scope of the study is confined to selected regions within Pakistan where textile and apparel consumption is prominent. Urban and semi-urban consumer segments are emphasized due to their greater exposure to branded apparel, sustainability discourse, and export-linked textile markets. Rural consumption patterns and informal apparel markets are not explicitly examined, as these segments operate under different economic and behavioral conditions. This geographic focus enhances the relevance of the findings for export-oriented sustainability strategies but limits insights into green consumption behavior in less commercialized settings.

In terms of population scope, the study targets consumers who possess basic awareness of environmental issues and apparel purchasing decisions. The research does not focus on specific age groups, professions, or income categories in isolation; rather, it aims to capture a broad representation of consumers engaged in apparel consumption. However, highly specialized consumer segments, such as sustainability activists or industry professionals, are not separately analyzed. This general consumer focus ensures that the findings reflect mainstream consumption behavior rather than niche sustainability-driven preferences.

The temporal scope of the study is limited to the period during which data are collected. Consumer attitudes and environmental concern are influenced by current economic conditions, environmental events, and media discourse. As such, the findings represent behavioral tendencies during a specific timeframe and may evolve as sustainability awareness and market conditions change. Longitudinal analysis of behavioral shifts over time is beyond the scope of this study but represents an important avenue for future research.

Another important aspect of the scope relates to policy and regulatory factors. While the study acknowledges the broader regulatory environment influencing sustainability in Pakistan's textile export sector, it does not empirically test the direct effects of government policies, trade regulations, or environmental enforcement mechanisms on consumer behavior. These factors are treated as part of the contextual background rather than as core analytical variables. The study's focus remains on individual-level behavioral determinants rather than institutional or macroeconomic influences.

The scope of this research also excludes comparative analysis across multiple industries. Although sustainability challenges are present in various export sectors, the study deliberately concentrates on textiles and apparel due to their environmental intensity and economic significance in Pakistan. Comparative studies involving other industries such as leather, agriculture, or manufacturing are beyond the intended boundaries of this research and may be addressed in future investigations.

In summary, the scope of this study is carefully defined to ensure analytical depth, contextual relevance, and theoretical coherence. By concentrating on behavioral determinants of sustainable apparel demand within Pakistan's textile export market, the research provides focused insights into green consumption without overextending into unrelated domains. These boundaries allow the study to make a meaningful contribution to sustainability and consumer behavior literature while offering practical relevance for industry stakeholders and policymakers operating within the defined context.

LITERATURE REVIEW

The literature on green consumption and sustainable apparel has expanded significantly in recent years, particularly in response to increasing environmental challenges associated with the textile and fashion industry. Prior research emphasizes that consumer purchasing behavior plays a crucial role in reinforcing sustainability initiatives, especially in environmentally intensive sectors such as apparel manufacturing. Existing studies grounded in behavioral theories highlight that pro-environmental purchase intention is shaped not only by environmental awareness but

also by individuals' attitudes, perceived control, moral responsibility, and belief in the effectiveness of their actions. Empirical evidence further suggests that environmental concern often influences purchase intention indirectly through behavioral and psychological mechanisms rather than acting as a direct determinant. Building on this stream of research, the present study draws conceptual and theoretical grounding from established work on eco-friendly apparel consumption, particularly studies that extend the Theory of Planned Behavior to incorporate environmental concern, personal moral norms, and perceived consumer effectiveness, thereby providing a robust foundation for examining sustainable apparel demand in a developing economy context

2.1 Literature Review of Attitude toward Sustainable Apparel

Attitude toward sustainable apparel represents one of the most extensively examined psychological determinants in green consumption literature and is widely regarded as a central explanatory construct in predicting pro-environmental purchase intention within the textile and apparel industry. Attitude reflects an individual's overall evaluative orientation toward purchasing eco-friendly apparel, formed through cognitive beliefs, affective responses, and value-based judgments associated with environmental responsibility, ethical production, and perceived product benefits (Ajzen, 1991; Taylor & Todd, 1995; Jaiswal & Kant, 2018). In the context of sustainable apparel, attitude is shaped by consumers' perceptions of environmental harm caused by conventional textile production, their beliefs about the effectiveness of eco-friendly alternatives, and their emotional alignment with sustainability-related values (Kim & Choi, 2005; Paul et al., 2016; Shukla, 2019). Empirical research consistently demonstrates that consumers who hold favorable attitudes toward sustainable apparel are more inclined to develop positive purchase intentions, although the strength of this relationship varies across economic and cultural settings (Yadav & Pathak, 2016; Kumar et al., 2017; Jaiswal & Kant, 2018).

A substantial body of literature emphasizes that attitude toward sustainable apparel is strongly influenced by consumers' environmental awareness and concern, as individuals who recognize the ecological consequences of textile production tend to evaluate eco-friendly apparel more positively (Diamantopoulos et al., 2003; Bamberg, 2003; Kim & Choi, 2005). However, scholars argue that environmental concern alone does not automatically produce favorable attitudes unless consumers perceive sustainable apparel as a viable and meaningful alternative to conventional clothing (Paul et al., 2016; Ru et al., 2019; Kumar et al., 2022). Studies examining eco-friendly apparel consumption reveal that when consumers associate sustainable apparel with tangible environmental benefits, such as reduced pollution or responsible resource use, their attitudes become more favorable and stable (Jang et al., 2012; Saricam & Okur, 2019; Roozen et al., 2021). Conversely, when sustainability claims are perceived as vague or exaggerated, attitudes may weaken despite high environmental awareness (Kim & Choi, 2005; Kong et al., 2021).

Prior research grounded in the Theory of Planned Behavior consistently positions attitude as a direct antecedent of purchase intention in sustainable consumption contexts (Ajzen, 1991; Taylor & Todd, 1995; Armitage & Conner, 1999). Empirical studies focusing on green apparel demonstrate that positive attitudes significantly increase consumers' willingness to purchase eco-friendly clothing, particularly when supported by perceived behavioral control and moral obligation (Paul et al., 2016; Shukla, 2019; Kumar et al., 2022). Nevertheless, evidence from developing economies suggests that favorable attitudes may coexist with weak purchasing behavior due to structural and economic constraints, indicating that attitude alone may be insufficient to generate consistent green consumption (Yadav & Pathak, 2017; Ru et al., 2019; Shalender & Sharma, 2020). This phenomenon highlights the importance of contextualizing attitudinal effects within broader behavioral frameworks.

Research further indicates that consumers' attitudes toward sustainable apparel are closely linked to perceived product attributes such as

quality, durability, design, and price fairness (Jaiswal & Kant, 2018; Puspita & Chae, 2021). When eco-friendly apparel is perceived as inferior in aesthetics or functionality, positive environmental attitudes may not translate into purchase intention (Manchiraju & Sadachar, 2014; Saricam & Okur, 2019). Conversely, studies show that when sustainable apparel is positioned as fashionable, comfortable, and competitively priced, consumers develop more favorable attitudes and stronger purchase intentions (Jang et al., 2012; Kong et al., 2021; Roozen et al., 2021). This indicates that attitude formation is not purely value-driven but is influenced by consumers' evaluation of trade-offs between sustainability and personal utility.

Another important dimension in the literature concerns the role of moral and ethical considerations in shaping attitudes toward sustainable apparel. Scholars argue that attitudes become stronger and more enduring when consumers perceive eco-friendly apparel purchasing as morally appropriate or ethically desirable behavior (Wan et al., 2014; Wang et al., 2016; Ru et al., 2019). Empirical findings suggest that individuals who internalize environmental responsibility as part of their moral identity tend to hold more favorable attitudes toward sustainable apparel, even when external incentives are limited (Paul et al., 2016; Kumar et al., 2022). This moralization of consumption attitudes is particularly relevant in sustainability contexts, where purchasing decisions are often framed as expressions of ethical commitment rather than purely economic choices.

The literature also highlights that attitudes toward sustainable apparel are influenced by consumers' trust in sustainability claims, certifications, and labeling mechanisms (Kim & Choi, 2005; Jaiswal & Kant, 2018; Kong et al., 2021). In markets where regulatory enforcement and standardization are perceived as weak, consumers may develop skeptical attitudes toward eco-friendly apparel due to concerns about greenwashing (Diamantopoulos et al., 2003; Paul et al., 2016). Such skepticism can erode positive evaluations and reduce the motivational impact of sustainability messaging. Studies emphasize that transparent communication and credible certification systems are essential for strengthening positive attitudes and sustaining green consumption (Roozen et al., 2021; Puspita & Chae, 2021).

Cultural and socioeconomic factors further shape attitudes toward sustainable apparel, particularly in developing economies. Research suggests that in price-sensitive markets, consumers may hold positive attitudes toward sustainability at an abstract level while prioritizing affordability and accessibility in actual purchase decisions (Yadav & Pathak, 2017; Ru et al., 2019). In such contexts, attitude toward sustainable apparel may reflect aspirational values rather than actionable preferences. This attitudinal ambivalence is frequently observed in export-oriented economies, where exposure to global sustainability norms coexists with local economic constraints (Paul et al., 2016; Kumar et al., 2022). As a result, attitude must be interpreted as a conditional determinant whose influence depends on perceived feasibility and contextual support.

Recent empirical studies reinforce the view that attitude toward sustainable apparel exerts its strongest influence when integrated with perceived behavioral control and perceived consumer effectiveness (Jaiswal & Kant, 2018; Ru et al., 2019; Kumar et al., 2022). When consumers believe they have the ability and resources to act on their positive attitudes and perceive their actions as meaningful, the attitude–intention relationship becomes more consistent. Conversely, when perceived constraints dominate, attitude may lose its predictive power despite favorable evaluations. This interaction underscores the necessity of examining attitude within an extended behavioral framework rather than as an isolated construct.

In the specific context of Pakistan's textile export market, attitude toward sustainable apparel is shaped by the intersection of global sustainability discourse and domestic consumption realities. While international buyers and media exposure have increased awareness of environmental responsibility, domestic markets often lack standardized sustainability communication and affordable eco-friendly options. Consequently, consumers may develop positive attitudes toward

sustainable apparel conceptually, yet remain hesitant to translate these attitudes into purchasing behavior. Existing literature suggests that strengthening attitudes alone is insufficient; enabling conditions that enhance perceived control, trust, and moral relevance are equally necessary to stimulate sustainable apparel demand (Paul et al., 2016; Shukla, 2019; Kumar et al., 2022).

Overall, the literature establishes attitude toward sustainable apparel as a critical but context-dependent determinant of green consumption. Positive attitudes are essential for fostering sustainable apparel demand, yet their behavioral impact is moderated by economic feasibility, trust, moral norms, and perceived effectiveness. In developing, export-oriented economies such as Pakistan, understanding attitude requires a nuanced approach that recognizes both evaluative endorsement and practical constraint. By building on this literature, the present study positions attitude as a core explanatory construct within an extended behavioral framework to better explain sustainable apparel demand in Pakistan's textile export market.

2.2 Literature Review of Subjective Norm and Green Consumption

Subjective norm represents a critical social dimension of green consumption behavior and refers to individuals' perceptions of social pressure or social expectations regarding whether they should engage in environmentally responsible purchasing behavior. Within the Theory of Planned Behavior, subjective norm captures the influence of important reference groups—such as family members, peers, colleagues, and society at large—on consumers' decision-making processes (Ajzen, 1991; Taylor & Todd, 1995). In the context of sustainable apparel consumption, subjective norm reflects the extent to which consumers believe that significant others expect them to purchase eco-friendly clothing and whether they feel motivated to comply with those expectations (Arvola et al., 2008; Paul et al., 2016; Shukla, 2019). Green consumption literature widely acknowledges that social influence can play a decisive role in shaping ethical and environmentally responsible behavior, particularly in consumption contexts where moral values and collective responsibility are emphasized (Caperello & Kurani, 2011; Yadav & Pathak, 2017; Ru et al., 2019).

Empirical studies examining sustainable consumption consistently demonstrate that subjective norms can positively influence consumers' purchase intentions toward green products, including eco-friendly apparel, by reinforcing socially desirable behavior and legitimizing environmentally responsible choices (Jaiswal & Kant, 2018; Shukla, 2019; Zhang et al., 2019). When consumers perceive that their social environment values sustainability, they are more likely to develop intentions aligned with these expectations. Research further suggests that subjective norms are particularly influential in consumption decisions involving ethical considerations, as individuals may seek social approval or avoid social disapproval by conforming to perceived environmental expectations (Paul et al., 2016; Wang et al., 2016; Ru et al., 2019). However, the strength of subjective norm as a predictor of green consumption varies considerably across cultural and economic contexts.

In collectivist societies, subjective norms are often assumed to exert a stronger influence on individual behavior due to the emphasis on social harmony, group conformity, and interdependence (Kim & Choi, 2005; Yadav & Pathak, 2017). Several studies argue that in such contexts, consumers are more likely to align their purchasing decisions with the preferences and opinions of family members and peers, particularly for behaviors associated with moral or social responsibility (Arvola et al., 2008; Paul et al., 2016). However, empirical evidence from emerging economies presents mixed findings. While some studies report a significant positive effect of subjective norms on green purchase intention, others find that social influence plays a limited or inconsistent role, especially in the case of sustainable apparel consumption (Jaiswal & Kant, 2018; Ru et al., 2019; Kumar et al., 2022).

Research focusing specifically on eco-friendly apparel reveals that subjective norms often exert

weaker influence compared to attitudinal and control-related factors. Scholars argue that apparel consumption is highly individualized and driven by personal preferences related to style, comfort, and price, which may reduce the salience of social expectations in shaping purchase decisions (Manchiraju & Sadachar, 2014; Saricam & Okur, 2019). Moreover, sustainable apparel purchasing may not yet be widely institutionalized as a social norm in many developing markets, limiting the extent to which consumers experience explicit social pressure to buy eco-friendly clothing (Paul et al., 2016; Ru et al., 2019). As a result, subjective norm may function as a secondary or indirect determinant rather than a dominant driver of green consumption behavior.

Several studies emphasize that the effectiveness of subjective norms depends on the visibility and social signaling associated with sustainable consumption. When eco-friendly apparel is visible and socially recognizable, individuals may be more inclined to conform to social expectations due to reputational considerations (Berger & Corbin, 1992; Jang et al., 2012; Kong et al., 2021). In contrast, when sustainable apparel lacks clear differentiation from conventional clothing, social influence may diminish, as others cannot easily observe or evaluate environmentally responsible behavior. This limitation is particularly relevant in markets where sustainability labeling and certification are inconsistent or poorly communicated (Kim & Choi, 2005; Jaiswal & Kant, 2018).

The literature further suggests that subjective norms interact with other behavioral constructs, particularly personal moral norms and perceived consumer effectiveness, in shaping green consumption intentions. While subjective norms reflect external social expectations, personal moral norms represent internalized ethical obligations that may override or complement social pressure (Wan et al., 2014; Wang et al., 2016; Ru et al., 2019). Empirical evidence indicates that when moral responsibility toward the environment is strong, consumers may rely less on social approval and more on personal values when making sustainable purchasing decisions (Paul et al., 2016; Kumar et al., 2022). This dynamic may explain

why subjective norms sometimes exhibit weaker direct effects on sustainable apparel purchase intention compared to moral or attitudinal factors.

In developing economies, economic and structural constraints further moderate the influence of subjective norms on green consumption. Studies report that even when consumers perceive social encouragement for environmentally responsible behavior, practical barriers such as affordability, availability, and access can prevent them from acting on these expectations (Yadav & Pathak, 2017; Ru et al., 2019; Shalender & Sharma, 2020). Under such conditions, subjective norms may generate favorable intentions at a conceptual level but fail to translate into actual purchasing behavior. This highlights the importance of perceived behavioral control in enabling consumers to respond to social expectations related to sustainability.

Research examining green consumption in textile and apparel contexts also points to generational differences in the influence of subjective norms. Younger consumers, particularly students and early-career professionals, may be more responsive to peer influence and social discourse surrounding sustainability, especially when environmental issues are actively discussed within their social networks (Paul et al., 2016; Shukla, 2019). However, even among younger segments, the influence of subjective norms may weaken when sustainable apparel is perceived as costly or inaccessible. This suggests that social influence alone cannot overcome structural barriers to green consumption.

In the context of Pakistan's textile export market, subjective norms related to sustainable apparel consumption are shaped by limited social discourse and low visibility of eco-friendly purchasing behavior. Although environmental issues are increasingly discussed in media and policy forums, sustainable apparel consumption has not yet evolved into a widely endorsed social practice. Consequently, consumers may not experience strong normative pressure from family or peers to prioritize eco-friendly clothing. Existing literature suggests that in such contexts, subjective norms exert weaker direct influence on purchase

intention and may instead operate indirectly by shaping attitudes or reinforcing moral norms (Paul et al., 2016; Ru et al., 2019; Kumar et al., 2022). Furthermore, studies emphasize that institutional support and public advocacy play a crucial role in strengthening subjective norms related to sustainability. When governments, industry leaders, and opinion influencers actively promote green consumption, social expectations surrounding sustainable behavior become more salient and influential (Bamberg, 2003; Jaiswal & Kant, 2018; Kong et al., 2021). In the absence of such institutional reinforcement, subjective norms may remain diffuse and ineffective. This observation is particularly relevant for Pakistan, where sustainability promotion has largely focused on export compliance rather than domestic consumption behavior.

Overall, the literature indicates that subjective norm is a complex and context-sensitive determinant of green consumption. While social influence can encourage environmentally responsible purchasing under certain conditions, its impact on sustainable apparel demand is often weaker and more variable than that of attitude, perceived behavioral control, and moral norms. In export-oriented developing economies, subjective norms may lack the social reinforcement necessary to drive consistent green consumption behavior. Consequently, understanding the role of subjective norm requires careful consideration of cultural context, market structure, and interaction with other behavioral factors. Building on this literature, the present study incorporates subjective norm as an important explanatory variable while recognizing its potentially indirect and conditional influence on sustainable apparel demand in Pakistan's textile export market.

2.3 Literature Review of Perceived Behavioral Control in Sustainable Purchasing

Perceived behavioral control (PBC) is widely recognized as one of the most influential determinants of sustainable purchasing behavior, particularly in contexts where consumers face economic, informational, and structural constraints. Within the Theory of Planned Behavior, perceived behavioral control refers to an individual's perception of their capability, resources, and opportunities to perform a specific behavior, reflecting both internal control factors such as confidence and knowledge and external factors such as availability, affordability, and accessibility of products (Ajzen, 1991; Armitage & Conner, 1999). In sustainable consumption research, PBC has consistently emerged as a critical predictor of purchase intention, especially for behaviors that require additional effort, financial commitment, or deviation from habitual consumption patterns (Taylor & Todd, 1995; Paul et al., 2016; Shukla, 2019). Sustainable apparel purchasing, in particular, is often perceived as more complex than conventional clothing consumption, making perceived behavioral control a central explanatory construct in understanding green consumption behavior.

A substantial body of empirical literature demonstrates that consumers are more likely to intend to purchase eco-friendly apparel when they believe they possess sufficient financial resources, access to sustainable products, and the practical ability to identify and evaluate environmentally responsible options (Kim & Choi, 2005; Jaiswal & Kant, 2018; Ru et al., 2019). Studies indicate that even when consumers hold positive attitudes toward sustainability and express concern for the environment, low perceived behavioral control can significantly weaken purchase intention (Paul et al., 2016; Yadav & Pathak, 2017). This finding underscores the notion that sustainability-oriented consumption is not solely value-driven but is strongly conditioned by consumers' perceived feasibility of acting on those values. In apparel markets, where sustainable products are often associated with higher prices or limited availability, perceived behavioral control becomes a decisive factor shaping purchasing decisions.

Research consistently highlights affordability as a key component of perceived behavioral control in sustainable purchasing. Several studies report that consumers perceive eco-friendly apparel as more expensive than conventional alternatives, which reduces their perceived ability to engage in green consumption (Kim & Choi, 2005; Jaiswal & Kant, 2018; Saricam & Okur, 2019). This perception is particularly salient in developing economies,

where disposable income levels are lower and price sensitivity is high (Yadav & Pathak, 2017; Ru et al., 2019). When consumers believe that sustainable apparel exceeds their financial capacity, perceived behavioral control diminishes, even among individuals with strong environmental concern. As a result, PBC often exerts a stronger influence on purchase intention than attitude or subjective norms in resource-constrained contexts.

Availability and accessibility of sustainable apparel also play a crucial role in shaping perceived behavioral control. Empirical studies indicate that consumers are more likely to perceive green purchasing as achievable when eco-friendly apparel is readily available through familiar retail channels and clearly identifiable through labeling or certification (Jang et al., 2012; Paul et al., 2016; Roozen et al., 2021). Conversely, limited distribution, lack of visibility, and inconsistent sustainability labeling can reduce consumers' sense of control by increasing search costs and uncertainty (Kim & Choi, 2005; Jaiswal & Kant, 2018). In such cases, even consumers with strong pro-environmental values may refrain from sustainable purchasing due to perceived inconvenience or effort.

Another important dimension of perceived behavioral control relates to consumers' knowledge and confidence in making sustainable choices. Studies suggest that consumers who feel informed about environmental issues and understand how to identify sustainable apparel options report higher levels of perceived control and stronger purchase intentions (Diamantopoulos et al., 2003; Paul et al., 2016; Shukla, 2019). Conversely, lack of knowledge regarding sustainability standards, materials, or certifications can undermine perceived control by creating uncertainty and fear of making incorrect choices (Kim & Choi, 2005; Kong et al., 2021). This highlights the role of information clarity and consumer education in enhancing perceived behavioral control and facilitating green consumption.

Empirical evidence further suggests that perceived behavioral control often functions as the strongest predictor of sustainable purchase intention in

extended behavioral models. Several studies applying the extended Theory of Planned Behavior report that PBC exerts a stronger direct effect on eco-friendly apparel purchase intention than attitude or subjective norms (Paul et al., 2016; Ru et al., 2019; Kumar et al., 2022). This dominance of PBC reflects the reality that sustainable purchasing frequently involves overcoming practical barriers rather than merely adopting favorable evaluations or responding to social pressure. When consumers believe that sustainable apparel purchasing is within their control, they are more likely to translate positive attitudes and moral values into actionable intentions.

The interaction between perceived behavioral control and environmental concern has also been widely discussed in the literature. While environmental concern increases awareness of ecological issues, PBC determines whether consumers feel capable of acting on that concern (Bamberg, 2003; Kim & Choi, 2005; Paul et al., 2016). Studies indicate that environmental concern may indirectly influence purchase intention through its positive effect on perceived behavioral control, as environmentally concerned consumers are more likely to seek information, develop competence, and perceive greater control over sustainable purchasing decisions (Zhang et al., 2019; Ru et al., 2019). This indirect pathway underscores the mediating role of PBC in converting concern into intention.

Cultural and socioeconomic contexts further shape the role of perceived behavioral control in green consumption. In developing economies, structural constraints such as limited retail infrastructure, inconsistent product availability, and income instability can significantly reduce consumers' perceived control over sustainable purchasing (Yadav & Pathak, 2017; Ru et al., 2019; Shalender & Sharma, 2020). As a result, PBC becomes a more salient determinant of purchase intention compared to developed markets, where sustainable products are more accessible and institutional support is stronger. This contextual variation explains why PBC often exhibits a stronger predictive role in studies conducted in emerging economies.

In the context of textile and apparel consumption, perceived behavioral control is also influenced by trust-related factors. Consumers may perceive low control if they doubt the credibility of sustainability claims or fear being misled by greenwashing practices (Kim & Choi, 2005; Jaiswal & Kant, 2018; Kong et al., 2021). Such skepticism increases perceived risk and reduces confidence in making sustainable choices, thereby weakening perceived control. Empirical studies suggest that transparent labeling, credible certification, and consistent sustainability communication can enhance PBC by reducing uncertainty and increasing consumers' confidence in their purchasing decisions (Roozen et al., 2021; Puspita & Chae, 2021).

Recent research also highlights the role of perceived behavioral control in bridging the intention–behavior gap in sustainable consumption. While positive attitudes and moral norms may generate intention, actual behavior is more likely to occur when consumers perceive high levels of control over the purchasing process (Armitage & Conner, 1999; Paul et al., 2016). In sustainable apparel contexts, this implies that interventions aimed at increasing green consumption should prioritize reducing practical barriers, improving access, and enhancing consumers' sense of capability rather than focusing solely on awareness campaigns.

Within Pakistan's textile export market, perceived behavioral control is particularly relevant due to the coexistence of global sustainability pressures and domestic market limitations. While export-oriented firms increasingly adopt sustainable practices to meet international standards, domestic consumers may face limited access to certified sustainable apparel and insufficient information about environmental attributes. This disconnect can reduce perceived behavioral control and weaken sustainable apparel demand. Existing literature suggests that improving domestic availability, affordability, and transparency of sustainable apparel can significantly enhance PBC and, in turn, strengthen purchase intention (Paul et al., 2016; Ru et al., 2019; Kumar et al., 2022).

Overall, the literature establishes perceived behavioral control as a pivotal determinant of sustainable purchasing behavior, particularly in apparel markets characterized by economic and structural constraints. High levels of PBC enable consumers to act on their environmental concern, positive attitudes, and moral values, whereas low PBC can suppress green consumption despite favorable evaluations. In export-oriented developing economies such as Pakistan, perceived behavioral control plays a central role in shaping sustainable apparel demand and must be addressed through supportive market structures, credible information, and consumer empowerment. By incorporating PBC into an extended behavioral framework, the present study builds on existing literature to provide a comprehensive explanation of green consumption behavior in Pakistan's textile export market.

2.4 Literature Review of Personal Moral Norm and Ethical Consumption

Personal moral norm represents an internalized sense of ethical obligation that motivates individuals to engage in behaviors they perceive as morally right, regardless of external rewards or social pressure. In the context of sustainable consumption, personal moral norm reflects consumers' self-expectations to act in ways that minimize environmental harm and contribute to ecological well-being through responsible purchasing decisions (Ajzen, 1991; Bamberg, 2003). Unlike subjective norms, which originate from perceived expectations of others, personal moral norms are rooted in internal values and moral convictions, making them particularly influential in ethical and pro-environmental consumption contexts (Wan et al., 2014; Wang et al., 2016). Sustainability literature increasingly recognizes personal moral norm as a critical determinant of green consumption behavior, especially in situations where institutional enforcement and social pressure are weak or inconsistent (Paul et al., 2016; Ru et al., 2019).

Empirical research demonstrates that consumers who experience a strong moral obligation toward environmental protection are more likely to develop favorable intentions toward eco-friendly

products, including sustainable apparel (Manchiraju & Sadachar, 2014; Wang et al., 2016; Ru et al., 2019). Moral norms function as an intrinsic motivational force that encourages individuals to align their consumption behavior with ethical values such as responsibility, fairness, and environmental stewardship. Studies grounded in extended behavioral frameworks show that personal moral norm often exerts a significant direct influence on purchase intention, sometimes surpassing the explanatory power of subjective norms and even attitude in ethical consumption contexts (Paul et al., 2016; Shalender & Sharma, 2020; Kumar et al., 2022). This suggests that when consumers internalize sustainability as a moral issue, their purchasing decisions are guided by ethical commitment rather than external validation.

Research focusing on sustainable apparel consumption highlights that moral considerations play a particularly important role due to the environmental and social implications associated with textile production. The apparel industry is frequently linked to pollution, excessive resource consumption, and unethical labor practices, which can evoke moral concern among consumers (Jang et al., 2012; Saricam & Okur, 2019). When consumers perceive sustainable apparel purchasing as a means of fulfilling their moral responsibility toward environmental protection, they are more likely to form strong purchase intentions despite potential barriers such as higher prices or limited availability (Manchiraju & Sadachar, 2014; Paul et al., 2016). This moral framing transforms sustainable apparel consumption from a discretionary choice into an ethically driven behavior.

Several studies indicate that personal moral norms are closely associated with environmental concern, as heightened awareness of environmental problems often leads to stronger feelings of moral obligation (Diamantopoulos et al., 2003; Bamberg, 2003; Wang et al., 2014). However, moral norms extend beyond concern by translating awareness into a sense of personal responsibility. While environmental concern reflects cognitive and emotional engagement with ecological issues, moral norms compel individuals

to act in accordance with their ethical standards (Wan et al., 2014; Ru et al., 2019). Empirical findings suggest that environmental concern indirectly influences purchase intention through its positive effect on moral norms, reinforcing the importance of moral obligation as a mediating mechanism in sustainable consumption behavior (Paul et al., 2016; Kumar et al., 2022).

The literature further emphasizes that moral norms are particularly influential in contexts where sustainability-related behavior is framed as a moral duty rather than a social trend. Studies report that consumers who view eco-friendly purchasing as a moral responsibility are less dependent on social approval and more consistent in their consumption behavior (Wang et al., 2016; Ru et al., 2019). This internal motivation enables individuals to maintain pro-environmental behavior even in the absence of supportive social norms or institutional incentives. In sustainable apparel markets, where green consumption may not yet be widely normalized, personal moral norms can serve as a compensatory mechanism that sustains ethical purchasing behavior.

Cultural and contextual factors significantly shape the strength and influence of personal moral norms. In developing economies, moral responsibility toward environmental protection may coexist with economic constraints that limit behavioral expression (Yadav & Pathak, 2017; Ru et al., 2019). However, studies indicate that individuals with strong moral norms are more willing to tolerate inconvenience or financial sacrifice in order to act in accordance with their ethical values (Manchiraju & Sadachar, 2014; Paul et al., 2016). This willingness highlights the resilience of moral motivation compared to externally driven influences such as subjective norms. Nonetheless, moral norms do not operate in isolation and are moderated by perceived behavioral control, as severe constraints can still inhibit action despite strong ethical commitment. Research also suggests that moral norms interact with perceived consumer effectiveness in shaping ethical consumption behavior. When consumers believe that their individual actions can meaningfully contribute to environmental improvement, moral obligations are more likely to

translate into purchase intention (Berger & Corbin, 1992; Kim & Choi, 2005; Ru et al., 2019). Conversely, when consumers perceive environmental problems as beyond individual influence, moral motivation may weaken due to feelings of helplessness or futility. This interaction underscores the importance of reinforcing both moral responsibility and perceived effectiveness to sustain ethical consumption.

Within the apparel context, moral norms are influenced by transparency and information regarding environmental and social impacts. Studies indicate that consumers are more likely to experience moral obligation when they are informed about the negative consequences of conventional apparel production and the benefits of sustainable alternatives (Jang et al., 2012; Kong et al., 2021). Clear communication regarding sustainable practices can activate moral considerations by making ethical implications salient at the point of purchase. In contrast, lack of information or ambiguity regarding sustainability claims can dilute moral motivation and reduce ethical consumption behavior (Kim & Choi, 2005; Jaiswal & Kant, 2018).

In Pakistan's textile export market, personal moral norms related to sustainable apparel consumption are shaped by growing awareness of environmental degradation alongside traditional consumption priorities. While environmental issues such as pollution and resource scarcity are increasingly visible, sustainable consumption has not yet become deeply embedded as a moral expectation within mainstream consumer culture. As a result, moral norms may vary significantly across individuals, with stronger influence among educated consumers and those exposed to sustainability discourse (Paul et al., 2016; Kumar et al., 2022). Existing literature suggests that strengthening moral norms through education, awareness campaigns, and value-based communication can enhance ethical consumption in such contexts.

The literature also highlights that moral norms may exert stronger influence on intention than subjective norms in sustainability-related consumption. Empirical studies report that personal moral obligation often remains significant even when social influence is weak or insignificant (Ru et al., 2019; Kumar et al., 2022). This finding challenges the assumption that collectivist cultures rely primarily on social norms and emphasizes the role of internalized ethics in shaping green consumption behavior. In export-oriented developing economies, where sustainability initiatives are often externally imposed, moral norms may provide a crucial internal motivation that supports sustainable consumption.

Overall, the literature establishes personal moral norm as a powerful and contextually robust determinant of ethical and sustainable consumption behavior. Moral obligation motivates consumers to act in alignment with environmental values even in the absence of social pressure or immediate personal benefit. In sustainable apparel markets characterized by economic constraints and evolving social norms, personal moral norms can play a decisive role in driving green consumption. By incorporating personal moral norm into an extended behavioral framework, the present study builds on existing research to explain how ethical motivation contributes to sustainable apparel demand in Pakistan's textile export market.

2.5 Literature Review of Environmental Concern in the Textile and Apparel Industry

Environmental concern refers to the degree to which individuals are aware of environmental problems, emotionally engaged with ecological issues, and motivated to support actions that reduce environmental harm. Within sustainability and consumer behavior literature, environmental concern has long been recognized as a foundational antecedent of pro-environmental attitudes and intentions, particularly in industries characterized by high ecological impact such as textiles and apparel (Dunlap & Jones, 2002; Diamantopoulos et al., 2003). The textile and apparel industry is frequently identified as one of the most environmentally damaging sectors due to intensive water consumption, chemical usage, carbon emissions, and waste generation, which has heightened public and academic attention toward environmentally responsible consumption in this

domain (Jang et al., 2012; Saricam & Okur, 2019; Kong et al., 2021). As a result, environmental concern has become a central construct in explaining why consumers develop preferences for sustainable apparel and how ecological awareness influences green consumption behavior.

Empirical research consistently demonstrates that individuals with higher levels of environmental concern are more likely to express favorable attitudes toward eco-friendly products and exhibit stronger intentions to engage in sustainable consumption (Kim & Choi, 2005; Bamberg, 2003; Paul et al., 2016). In the apparel context, environmental concern reflects consumers' recognition of the environmental consequences associated with conventional textile production and their desire to mitigate such impacts through responsible purchasing choices (Jaiswal & Kant, 2018; Ru et al., 2019). Studies indicate that consumers who are concerned about pollution, climate change, and resource depletion tend to evaluate sustainable apparel more positively and perceive it as a meaningful alternative to conventional clothing (Jang et al., 2012; Roozen et al., 2021). However, while environmental concern is widely acknowledged as an important motivational factor, its direct influence on purchase intention is often inconsistent, suggesting that concern alone may be insufficient to drive sustainable consumption.

A growing body of literature argues that environmental concern primarily operates as an indirect driver of green consumption by shaping other psychological determinants such as attitude, moral norms, and perceived behavioral control (Bamberg, 2003; Kim & Choi, 2005; Paul et al., 2016). Research applying extended behavioral models shows that environmental concern strengthens positive attitudes toward sustainable apparel by increasing consumers' sensitivity to environmental attributes and ethical considerations (Yadav & Pathak, 2016; Jaiswal & Kant, 2018). At the same time, environmental concern contributes to the development of moral obligation, encouraging consumers to view sustainable purchasing as an ethical responsibility rather than a discretionary choice (Wang et al., 2016; Ru et al., 2019). These indirect pathways help explain why environmental concern often exhibits a weaker direct effect on purchase intention but remains a critical background factor in sustainable consumption behavior.

Studies focusing on textile and apparel consumption emphasize that environmental concern is shaped by consumers' awareness of industry-specific environmental issues. Knowledge of water pollution caused by dyeing processes, carbon emissions from global supply chains, and waste generated by fast fashion practices has been shown to increase consumers' concern and willingness to support sustainable apparel (Jang et al., 2012; Saricam & Okur, 2019; Kong et al., 2021). When consumers perceive the apparel industry as environmentally harmful, their concern becomes more salient and personally relevant, increasing the likelihood that sustainability considerations will enter their purchase decision-making process. Conversely, limited awareness of industry-specific impacts can weaken environmental concern and reduce motivation for green consumption.

The literature also highlights that environmental concern varies across demographic and cultural contexts, influencing its role in sustainable apparel demand. Research suggests that younger consumers and individuals with higher education levels often exhibit greater environmental concern due to increased exposure to sustainability discourse and environmental education (Diamantopoulos et al., 2003; Paul et al., 2016; Shukla, 2019). However, high concern does not always translate into consistent purchasing behavior, particularly in developing economies where economic constraints and limited access to sustainable products restrict behavioral expression (Yadav & Pathak, 2017; Ru et al., 2019). This discrepancy underscores the importance of examining environmental concern within its socioeconomic context rather than assuming a universal effect across markets.

Several studies report that environmental concern interacts strongly with perceived behavioral control in shaping sustainable apparel purchase intention. While environmental concern increases motivation to act, perceived behavioral control determines whether consumers feel capable of

acting on that motivation (Bamberg, 2003; Paul et al., 2016; Zhang et al., 2019). Empirical findings indicate that environmentally concerned consumers are more likely to intend to purchase sustainable apparel when they believe such products are affordable, accessible, and easy to identify (Jaiswal & Kant, 2018; Ru et al., 2019). In contrast, when sustainable apparel is perceived as costly or unavailable, environmental concern may result in frustration rather than action, weakening its behavioral impact.

The relationship between environmental concern and trust also features prominently in the literature. Consumers with high environmental concern tend to scrutinize sustainability claims more carefully and may develop skepticism toward greenwashing practices (Kim & Choi, 2005; Jaiswal & Kant, 2018). While this critical orientation can enhance informed decision-making, it may also reduce purchase intention if consumers doubt the authenticity of eco-friendly apparel claims. Studies suggest that transparent communication, credible certification, and consistent labeling are essential for converting environmental concern into trust and, ultimately, sustainable purchasing behavior (Roozen et al., 2021; Puspita & Chae, 2021).

Research further indicates that environmental concern contributes to perceived consumer effectiveness, as individuals who are concerned about environmental problems are more likely to believe that their personal actions can make a difference (Berger & Corbin, 1992; Kim & Choi, 2005; Ru et al., 2019). This belief strengthens the motivation to engage in green consumption by reducing feelings of helplessness associated with large-scale environmental challenges. In sustainable apparel contexts, perceived consumer effectiveness can amplify the impact of environmental concern by reinforcing the idea that individual purchasing decisions contribute to broader environmental improvement.

In developing economies, environmental concern often coexists with competing priorities that limit its influence on consumption behavior. Studies conducted in emerging markets reveal that while consumers express concern about environmental degradation, economic considerations such as price, income stability, and product availability frequently dominate apparel purchasing decisions (Yadav & Pathak, 2017; Shalender & Sharma, 2020). As a result, environmental concern may function more as an attitudinal orientation than a direct behavioral driver. This pattern is particularly relevant for export-oriented textile markets, where sustainability pressures originate primarily from international stakeholders rather than domestic consumer demand.

Within Pakistan's textile and apparel context, environmental concern is shaped by increasing visibility of environmental issues such as water scarcity, industrial pollution, and climate vulnerability. While these issues have heightened public awareness, sustainable apparel consumption has not yet become a mainstream response to environmental concern. Existing literature suggests that environmental concern among Pakistani consumers may be relatively high at a conceptual level but constrained in practice by limited availability of certified sustainable apparel and insufficient consumer empowerment (Paul et al., 2016; Kumar et al., 2022). This gap highlights the importance of integrating environmental concern with enabling factors such as perceived behavioral control and moral norms to stimulate sustainable demand.

The literature also emphasizes that environmental concern alone does not guarantee long-term commitment to sustainable consumption. Sustained green purchasing behavior requires reinforcement through positive consumption experiences, social validation, and institutional support (Bamberg, 2003; Ru et al., 2019). In the absence of such reinforcement, environmental concern may fluctuate or decline over time, reducing its effectiveness as a driver of sustainable apparel demand. This insight underscores the need for holistic approaches that combine awareness-raising with structural and behavioral interventions.

Overall, the literature positions environmental concern as a necessary but insufficient condition for sustainable apparel consumption. While environmental concern increases awareness and moral sensitivity toward ecological issues, its impact on purchase intention is mediated by

attitudes, perceived behavioral control, perceived consumer effectiveness, and contextual constraints. In the textile and apparel industry, where environmental impacts are substantial yet consumption choices are influenced by economic and practical considerations, environmental concern must be supported by enabling mechanisms to translate motivation into action. By incorporating environmental concern within an extended behavioral framework, the present study builds on existing literature to explain how ecological awareness contributes to sustainable apparel demand in Pakistan's textile export market.

2.6 Literature Review of Perceived Consumer Effectiveness

Perceived consumer effectiveness (PCE) refers to an individual's belief that their personal actions can meaningfully contribute to solving environmental problems and producing positive ecological outcomes. Within sustainability and consumer behavior literature, PCE is widely regarded as a critical psychological construct that explains why environmentally aware consumers choose to engage—or disengage—from pro-environmental purchasing behavior (Berger & Corbin, 1992; Ellen et al., 1991). In the context of sustainable consumption, PCE captures consumers' confidence that their individual purchasing decisions, such as choosing eco-friendly apparel, can collectively influence environmental protection and encourage responsible production practices (Kim & Choi, 2005; Paul et al., 2016). Scholars argue that without a strong sense of perceived effectiveness, consumers may feel powerless in the face of large-scale environmental challenges, leading to apathy or inaction despite positive attitudes and high environmental concern (Bamberg, 2003; Ru et al., 2019).

Empirical research consistently demonstrates that perceived consumer effectiveness is positively associated with green purchase intention across a wide range of product categories, including sustainable apparel (Ellen et al., 1991; Kim & Choi, 2005; Jaiswal & Kant, 2018). Consumers who believe that their purchasing behavior can

contribute to environmental improvement are more likely to support eco-friendly products, as they perceive their actions as purposeful and impactful. In contrast, individuals with low PCE may perceive environmental problems as too vast to be influenced by individual behavior, reducing motivation to engage in sustainable consumption (Berger & Corbin, 1992; Diamantopoulos et al., 2003). This distinction highlights the importance of PCE in bridging the gap between environmental awareness and actionable purchasing behavior.

In the sustainable apparel context, perceived consumer effectiveness plays a particularly important role due to the scale and complexity of environmental issues associated with textile production. The apparel industry's environmental footprint—ranging from water pollution and chemical usage to carbon emissions and waste—can create a perception among consumers that individual choices are insignificant relative to systemic industrial practices (Jang et al., 2012; Saricam & Okur, 2019). Studies indicate that when consumers internalize the belief that choosing sustainable apparel contributes to reducing environmental harm, they are more likely to develop strong purchase intentions despite perceived barriers such as higher prices or limited availability (Kim & Choi, 2005; Paul et al., 2016; Ru et al., 2019). Thus, PCE functions as a motivational amplifier that strengthens the behavioral impact of other sustainability-related constructs.

Research grounded in extended behavioral frameworks suggests that PCE often interacts with attitude and environmental concern to shape green consumption behavior. While environmental concern increases awareness of ecological issues, PCE determines whether consumers believe their personal actions matter (Bamberg, 2003; Kim & Choi, 2005). Empirical findings show that environmentally concerned consumers with high PCE are significantly more likely to express purchase intentions toward eco-friendly apparel than those with low PCE (Paul et al., 2016; Jaiswal & Kant, 2018). This interaction indicates that PCE serves as a crucial mechanism through which concern is translated into

intention, reinforcing the argument that motivation alone is insufficient without perceived impact.

Several studies also highlight the role of perceived consumer effectiveness in strengthening personal moral norms related to ethical consumption. When consumers believe their actions can make a difference, moral obligation toward environmental protection becomes more salient and behaviorally relevant (Wang et al., 2016; Ru et al., 2019). In such cases, sustainable apparel purchasing is perceived not only as an environmentally responsible choice but also as a morally meaningful act. This moral reinforcement increases consumers' willingness to tolerate inconvenience or financial sacrifice in support of sustainability (Manchiraju & Sadachar, 2014; Paul et al., 2016). Conversely, low perceived effectiveness can weaken moral motivation by fostering feelings of futility or disengagement.

The literature further emphasizes that perceived consumer effectiveness is influenced by information availability and clarity regarding the environmental impact of products. Studies indicate that consumers are more likely to feel effective when they are provided with transparent information about how sustainable apparel reduces environmental harm, such as lower water usage or reduced emissions (Jang et al., 2012; Kong et al., 2021). Clear labeling, credible certifications, and consistent sustainability communication enhance PCE by linking individual purchasing decisions to tangible environmental outcomes (Kim & Choi, 2005; Roozen et al., 2021). In contrast, ambiguous or misleading sustainability claims can undermine perceived effectiveness and reduce green purchase intention.

Cultural and contextual factors also shape the role of perceived consumer effectiveness in sustainable consumption. In developing economies, where institutional capacity and environmental governance may be perceived as weak, consumers may question whether individual actions can compensate for systemic shortcomings (Yadav & Pathak, 2017; Ru et al., 2019). This skepticism can reduce PCE and weaken green consumption behavior, even among environmentally concerned individuals. However, research suggests that collective narratives emphasizing cumulative impact and shared responsibility can enhance PCE by framing individual actions as part of a broader societal effort (Bamberg, 2003; Paul et al., 2016). Such narratives are particularly relevant in export-oriented markets where sustainability pressures originate from international stakeholders.

Empirical studies in apparel consumption contexts reveal that perceived consumer effectiveness often exerts a stronger influence on purchase intention than subjective norms, especially when sustainability-related behavior is not yet socially normalized (Jaiswal & Kant, 2018; Ru et al., 2019). When social pressure is weak or ambiguous, consumers may rely more heavily on internal beliefs regarding the effectiveness of their actions. This finding underscores the compensatory role of PCE in contexts where social norms related to sustainable apparel consumption are still emerging.

The literature also highlights the moderating role of perceived behavioral control in the relationship between PCE and purchase intention. While PCE reflects belief in impact, perceived behavioral control reflects belief in feasibility (Ajzen, 1991; Armitage & Conner, 1999). Studies suggest that high PCE is most likely to translate into sustainable purchasing when consumers also perceive that they have the resources and opportunities to act (Paul et al., 2016; Ru et al., 2019). When perceived control is low, even consumers who believe in the effectiveness of their actions may be unable to engage in green consumption, indicating that PCE and PBC must be jointly considered to explain sustainable apparel demand.

In Pakistan's textile export market, perceived consumer effectiveness is shaped by increasing exposure to global sustainability discourse alongside limited domestic reinforcement. While international brands and buyers emphasize environmental responsibility, local consumers may lack clear feedback mechanisms demonstrating how their purchasing decisions influence environmental outcomes. Existing literature suggests that enhancing PCE in such

contexts requires visible links between consumer behavior and industry-level sustainability improvements, such as transparent reporting and consumer engagement initiatives (Paul et al., 2016; Kumar et al., 2022). Without such reinforcement, consumers may perceive sustainable apparel purchasing as symbolically meaningful but practically inconsequential.

The literature further suggests that perceived consumer effectiveness contributes to long-term commitment to sustainable consumption by fostering a sense of agency and empowerment. Consumers who feel effective are more likely to maintain green purchasing habits over time and advocate sustainable consumption within their social networks (Berger & Corbin, 1992; Kim & Choi, 2005). This spillover effect highlights the broader societal value of PCE beyond individual purchasing decisions. In the apparel sector, empowered consumers can influence market demand and encourage firms to adopt more sustainable practices.

Overall, existing research positions perceived consumer effectiveness as a pivotal determinant of sustainable consumption behavior, particularly in environmentally intensive industries such as textiles and apparel. PCE strengthens the motivational impact of environmental concern, moral norms, and positive attitudes by reinforcing the belief that individual actions matter. In developing, export-oriented economies like Pakistan, where sustainability initiatives are often externally driven, enhancing perceived consumer effectiveness is essential for cultivating consumer-driven demand for sustainable apparel. By incorporating PCE into an extended behavioral framework, the present study builds on existing literature to explain how belief in individual impact contributes to green consumption and supports sustainable transformation within Pakistan's textile export market.

2.7 Literature Review of Pro-Environmental Purchase Intention

Pro-environmental purchase intention represents an individual's conscious willingness and planned effort to select products that minimize environmental harm and support sustainability objectives. Within consumer behavior and sustainability literature, purchase intention is widely recognized as the most immediate and reliable predictor of actual purchasing behavior, particularly in ethical and environmentally responsible consumption contexts (Ajzen, 1991; Armitage & Conner, 1999). In the textile and apparel industry, pro-environmental purchase intention reflects consumers' readiness to prefer sustainable apparel over conventional alternatives, considering environmental impact, ethical production, and long-term ecological consequences (Kim & Choi, 2005; Paul et al., 2016). Due to the complexity and resource intensity of apparel consumption, understanding the antecedents of pro-environmental purchase intention has become a central focus of sustainability research.

Empirical studies consistently demonstrate that pro-environmental purchase intention is shaped by a combination of psychological, moral, and contextual factors rather than environmental awareness alone (Bamberg, 2003; Yadav & Pathak, 2016). While consumers may express concern about environmental degradation, such concern does not automatically result in purchasing eco-friendly apparel unless supported by favorable attitudes, perceived feasibility, moral responsibility, and belief in individual impact (Kim & Choi, 2005; Paul et al., 2016; Ru et al., 2019). This multidimensional nature of purchase intention has led researchers to adopt extended behavioral models that integrate multiple determinants to explain green consumption behavior more comprehensively.

Attitude toward sustainable apparel is frequently identified as a key antecedent of pro-environmental purchase intention. Studies show that consumers who evaluate eco-friendly apparel positively—based on perceived environmental benefits, ethical value, and functional attributes—are more likely to develop strong purchase intentions (Jaiswal & Kant, 2018; Shukla, 2019; Kumar et al., 2022). However, empirical findings suggest that attitude alone does not guarantee intention, particularly in developing economies where practical constraints may dominate decision-making (Yadav & Pathak, 2017; Ru et al.,

2019). This highlights the importance of considering intention as the outcome of interacting behavioral forces rather than a linear extension of attitude.

Perceived behavioral control has been repeatedly identified as one of the strongest predictors of pro-environmental purchase intention, especially in sustainable apparel contexts (Taylor & Todd, 1995; Paul et al., 2016; Ru et al., 2019). Consumers are more likely to intend to purchase sustainable apparel when they believe they possess sufficient financial resources, access to products, and knowledge to make informed choices. Studies report that perceived lack of affordability, limited availability, and uncertainty regarding sustainability claims significantly reduce purchase intention even among environmentally concerned consumers (Kim & Choi, 2005; Jaiswal & Kant, 2018; Saricam & Okur, 2019). This demonstrates that purchase intention is highly sensitive to perceived feasibility, reinforcing the central role of perceived behavioral control in sustainable consumption.

Environmental concern has also been widely examined as a determinant of pro-environmental purchase intention. Research indicates that individuals who are highly concerned about environmental issues are more likely to express intention to support eco-friendly products, including sustainable apparel (Diamantopoulos et al., 2003; Paul et al., 2016). However, the literature consistently shows that environmental concern often exerts its influence indirectly by shaping attitudes, moral norms, and perceived effectiveness rather than directly driving intention (Bamberg, 2003; Ru et al., 2019; Kumar et al., 2022). This indirect role suggests that concern functions as a motivational background factor that enhances sensitivity to sustainability considerations without guaranteeing behavioral commitment.

Personal moral norm is another critical determinant of pro-environmental purchase intention, particularly in ethical consumption contexts such as sustainable apparel. Studies demonstrate that individuals who internalize environmental responsibility as a moral obligation are more likely to intend to purchase eco-friendly products even in the absence of social pressure or economic incentives (Wang et al., 2016; Ru et al., 2019; Shalender & Sharma, 2020). Moral norms strengthen purchase intention by framing sustainable consumption as a matter of ethical integrity rather than personal preference. In apparel markets, where production processes are often associated with environmental and social harm, moral obligation can significantly enhance intention by activating ethical self-identity (Manchiraju & Sadachar, 2014; Paul et al., 2016). Subjective norms have also been examined as predictors of pro-environmental purchase intention, although their influence appears less consistent than other behavioral factors. Some studies report that perceived social pressure from family, peers, and society positively influences intention to purchase sustainable apparel (Arvola et al., 2008; Jaiswal & Kant, 2018). However, other studies find that subjective norms exert weak or insignificant effects, particularly in contexts where sustainable apparel consumption is not yet socially institutionalized (Ru et al., 2019; Kumar et al., 2022). This variability suggests that subjective norms may influence purchase intention indirectly by reinforcing attitudes or moral norms rather than acting as a dominant driver.

Perceived consumer effectiveness plays a crucial role in shaping pro-environmental purchase intention by reinforcing consumers' belief that their individual actions can contribute to environmental improvement (Ellen et al., 1991; Berger & Corbin, 1992). Empirical evidence indicates that consumers with high perceived consumer effectiveness are more likely to intend to purchase sustainable apparel, as they view their decisions as meaningful contributions to sustainability goals (Kim & Choi, 2005; Paul et al., 2016; Ru et al., 2019). In contrast, low perceived effectiveness can weaken intention by fostering feelings of helplessness or skepticism regarding the impact of individual consumption choices. This highlights the importance of empowerment in sustaining pro-environmental purchase intention. Research also indicates that trust in sustainability claims significantly influences pro-environmental purchase intention. Consumers are more likely to

intend to purchase sustainable apparel when they trust environmental labels, certifications, and brand claims (Kim & Choi, 2005; Jaiswal & Kant, 2018; Kong et al., 2021). Conversely, skepticism toward greenwashing practices can undermine intention even among environmentally concerned consumers. Transparent communication and credible certification systems have been shown to strengthen intention by reducing perceived risk and uncertainty associated with sustainable apparel purchasing (Roozen et al., 2021; Puspita & Chae, 2021).

In developing economies, pro-environmental purchase intention is strongly shaped by economic and structural constraints. Studies conducted in emerging markets reveal that while consumers may express strong intention to purchase sustainable products, actual intention levels are often moderated by income sensitivity, limited access to eco-friendly alternatives, and weak institutional support (Yadav & Pathak, 2017; Ru et al., 2019; Shalender & Sharma, 2020). This contextual sensitivity underscores the importance of examining purchase intention within specific market environments rather than assuming uniform determinants across regions.

Within Pakistan's textile export market, pro-environmental purchase intention reflects a complex interplay between growing environmental awareness and persistent consumption constraints. Exposure to international sustainability standards and global discourse has increased consumers' recognition of environmental responsibility, yet domestic markets often lack affordable and clearly differentiated sustainable apparel options. Existing literature suggests that under such conditions, purchase intention is heavily dependent on perceived behavioral control and perceived consumer effectiveness, which determine whether motivation translates into intention (Paul et al., 2016; Kumar et al., 2022). Strengthening intention therefore requires addressing both psychological and structural barriers.

The literature further highlights that pro-environmental purchase intention is not static but evolves in response to market experiences, policy interventions, and social reinforcement. Positive experiences with sustainable apparel can reinforce intention over time, while negative experiences may weaken commitment (Bamberg, 2003; Ru et al., 2019). This dynamic nature of intention emphasizes the importance of consistent quality, transparency, and accessibility in sustaining green consumption.

Overall, existing research positions pro-environmental purchase intention as the cumulative outcome of attitudinal, moral, control-related, and effectiveness-based factors. In environmentally intensive industries such as textiles and apparel, intention is shaped by both internal motivation and external feasibility. In export-oriented developing economies like Pakistan, understanding the determinants of pro-environmental purchase intention is essential for aligning consumer behavior with sustainability objectives.

METHODOLOGY
3.1 Introduction
This chapter outlines the methodological foundation adopted to empirically examine the behavioral determinants of green consumption within Pakistan's textile export market. The purpose of the methodology chapter is to present a clear, systematic, and academically rigorous explanation of how the research objectives are operationalized, how data are collected, and how analytical procedures are employed to test the proposed conceptual framework. Given the behavioral nature of the study and its grounding in established theoretical models of consumer behavior, the methodological design is structured to ensure validity, reliability, and contextual relevance while maintaining ethical and analytical integrity.

The research methodology is designed in alignment with the central aim of the study, which is to investigate how perceived behavioral control and environmental concern—alongside attitude, subjective norms, personal moral norms, and perceived consumer effectiveness—influence pro-environmental purchase intention toward sustainable apparel in Pakistan's textile export market. These constructs are inherently

psychological and perceptual in nature, requiring a research design capable of capturing subjective evaluations, beliefs, and intentions in a measurable and systematic manner. Accordingly, the methodological approach emphasizes quantitative inquiry, as it enables the statistical examination of relationships among multiple latent variables within a structured theoretical framework.

In sustainability and consumer behavior research, methodological rigor is particularly important due to the complexity of behavioral constructs and the risk of bias associated with self-reported data. Green consumption behavior is influenced by values, moral beliefs, social context, and perceived feasibility, all of which require careful operationalization to ensure that measurements accurately reflect the underlying constructs. This chapter therefore explains the rationale behind the selected research approach, the data source, the population and sampling strategy, and the analytical techniques used to test the proposed hypotheses. Each methodological decision is guided by the objective of producing findings that are both theoretically meaningful and practically applicable to the textile export sector.

The methodological structure of this study follows a logical progression, beginning with the overall research approach and purpose, followed by details of data sources, population characteristics, and sampling procedures. Subsequent sections describe the instruments used for data collection, the techniques applied to ensure data quality, and the statistical tools employed for analysis. The chapter also addresses pilot testing, validity and reliability assessment, and ethical considerations, ensuring transparency and compliance with academic research standards. This systematic organization enhances the credibility of the research and allows for replication or extension in future studies.

Given the export-oriented focus of the textile industry in Pakistan, the study adopts a consumer-centric methodological perspective. While much sustainability research in the textile sector concentrates on production processes and supply-side compliance, this study deliberately shifts attention to the demand side by examining

consumer intentions and perceptions. The methodological design reflects this shift by prioritizing consumer-level data and behavioral constructs rather than organizational performance metrics or technical indicators. This approach enables a deeper understanding of how sustainability initiatives can be reinforced through consumer demand rather than imposed solely through regulatory or buyer pressure.

The study also acknowledges the contextual characteristics of Pakistan as a developing economy, where consumer behavior is shaped by economic constraints, evolving sustainability awareness, and limited institutional reinforcement of green consumption. These contextual factors are considered in the methodological design to ensure that measurement scales, sampling strategies, and analytical interpretations are appropriate for the local market environment. The methodology is therefore not merely a technical exercise but a context-sensitive framework that reflects the realities of sustainable apparel consumption in Pakistan's textile export market.

Another important methodological consideration addressed in this chapter is the use of established measurement scales. To ensure construct validity and comparability with prior research, the study adapts measurement items from well-recognized studies in sustainability and consumer behavior literature. However, all items are carefully reworded and contextualized to suit the local market and the specific focus on sustainable apparel. This approach balances theoretical consistency with contextual relevance while minimizing the risk of measurement error. The methodology chapter explains how these items are operationalized and assessed for reliability and validity prior to hypothesis testing.

The choice of statistical techniques is also guided by the complexity of the conceptual framework, which involves multiple independent variables influencing a single dependent variable through direct relationships. The methodological design supports multivariate analysis to examine these relationships simultaneously and to assess the explanatory power of the proposed model. Emphasis is placed on analytical techniques that are widely accepted in behavioral and

sustainability research, ensuring that the findings are methodologically sound and academically defensible.

Ethical considerations form an integral part of the methodological framework. Given that the study involves human participants and the collection of perceptual data, ethical principles such as informed consent, confidentiality, anonymity, and voluntary participation are strictly observed. The methodology chapter outlines the procedures adopted to protect respondents' rights and to ensure that data collection complies with ethical research standards. These measures enhance trust in the research process and reinforce the integrity of the findings.

In summary, this chapter provides a comprehensive overview of the methodological approach employed to investigate green consumption behavior in Pakistan's textile export market. The methodology is designed to align closely with the research objectives and conceptual framework, ensuring that behavioral constructs are accurately measured and empirically tested. By adopting a structured, transparent, and context-sensitive methodological design, the study aims to generate reliable insights into the behavioral drivers of sustainable apparel demand. The subsequent sections of this chapter elaborate on each methodological component in detail, beginning with the research approach and purpose, to provide a clear roadmap of how the study is conducted and how its findings are derived.

3.2 Research Approach

The research approach adopted in this study is designed to systematically investigate the behavioral determinants that influence green consumption and sustainable apparel demand within Pakistan's textile export market. Selecting an appropriate research approach is a critical methodological decision, as it determines how the research problem is examined, how data are interpreted, and how conclusions are drawn. Given the objective of examining relationships among multiple behavioral constructs and testing theoretically grounded hypotheses, this study adopts a quantitative research approach. This approach is well suited for analyzing behavioral patterns, measuring latent psychological constructs, and establishing statistically supported relationships between variables within a structured conceptual framework.

A quantitative research approach emphasizes objectivity, measurement, and empirical validation, making it particularly appropriate for studies grounded in established behavioral theories such as the Theory of Planned Behavior and its extensions. In the context of green consumption research, quantitative methods enable researchers to operationalize abstract constructs—such as perceived behavioral control, environmental concern, moral norms, and perceived consumer effectiveness—into measurable indicators. This allows for systematic assessment of how these constructs influence pro-environmental purchase intention. By adopting a quantitative approach, the present study aims to move beyond descriptive insights and provide empirical evidence that can be generalized within the defined research context.

The choice of a quantitative approach is further justified by the explanatory nature of the research objectives. This study seeks to explain why consumers in Pakistan's textile export market develop or fail to develop intentions toward sustainable apparel consumption. Explanatory research requires the identification and testing of causal or associative relationships between variables, which is most effectively achieved through quantitative analysis. The structured nature of quantitative research allows for hypothesis testing, comparison of effect sizes, and assessment of the relative importance of different behavioral factors. This analytical rigor is essential for producing findings that are both academically credible and practically useful for industry stakeholders and policymakers.

Another key rationale for adopting a quantitative approach lies in the complexity of the proposed conceptual framework. The study incorporates multiple independent variables that simultaneously influence a single dependent variable. Examining such a framework requires analytical techniques capable of handling multivariate relationships and minimizing

subjective interpretation. Quantitative research provides the tools necessary to statistically test these relationships, ensuring that conclusions are based on empirical patterns rather than researcher inference. This is particularly important in sustainability research, where normative assumptions about environmentally responsible behavior can inadvertently bias qualitative interpretation.

The quantitative approach also supports comparability with existing literature. A substantial portion of prior research on green consumption and sustainable apparel demand employs quantitative methods to test behavioral models across different contexts. By adopting a similar approach, this study ensures methodological alignment with established research while extending empirical evidence to a developing, export-oriented economy. This comparability enhances the contribution of the study by allowing its findings to be positioned alongside existing empirical results and used in cross-contextual analysis.

In addition, the quantitative approach facilitates the use of standardized measurement instruments that have been previously validated in sustainability and consumer behavior research. These instruments allow for reliable measurement of latent constructs and reduce the risk of measurement error. In this study, established scales are adapted and contextualized to reflect sustainable apparel consumption within Pakistan's textile export market. The quantitative approach enables the assessment of these scales' reliability and validity through statistical procedures, ensuring that the constructs are measured accurately and consistently.

The decision to adopt a quantitative approach also reflects practical considerations related to data collection and analysis. Given the geographic scope of the study and the need to capture responses from a relatively large sample of consumers, quantitative surveys provide an efficient and scalable data collection method. Structured questionnaires allow for uniform data collection across respondents, facilitating statistical analysis and reducing variability introduced by interviewer bias or interpretive

differences. This efficiency is particularly valuable in developing economy contexts, where logistical constraints may limit the feasibility of extensive qualitative data collection.

While qualitative approaches offer depth and contextual richness, they are less suitable for the primary objectives of this study, which focus on hypothesis testing and measurement of behavioral relationships. Qualitative methods are often exploratory in nature and emphasize interpretation rather than generalization. In contrast, the present study seeks to empirically validate a theoretically grounded model and quantify the influence of specific behavioral determinants on sustainable apparel purchase intention. The quantitative approach therefore aligns more closely with the study's objectives and expected outcomes.

It is important to note that adopting a quantitative approach does not imply ignoring contextual or behavioral complexity. Rather, the approach allows for systematic examination of complex phenomena through carefully designed measurement and analysis. The study acknowledges that green consumption behavior is influenced by cultural, economic, and institutional factors; however, these influences are captured indirectly through behavioral constructs embedded in the conceptual framework. This enables the research to balance analytical rigor with contextual relevance.

The quantitative research approach also supports transparency and replicability, which are essential components of academic rigor. By clearly specifying variables, measurement items, and analytical procedures, the study allows other researchers to replicate or extend the research in similar or different contexts. This replicability enhances the scientific value of the study and contributes to cumulative knowledge development in sustainability and consumer behavior research.

In summary, the quantitative research approach adopted in this study is well suited to the investigation of green consumption behavior in Pakistan's textile export market. It enables empirical testing of a complex behavioral framework, supports hypothesis-driven analysis, and ensures methodological consistency with

existing literature. By emphasizing measurement, objectivity, and statistical validation, the quantitative approach provides a robust foundation for examining how perceived behavioral control, environmental concern, and related behavioral factors shape sustainable apparel demand. This approach ultimately strengthens the study's ability to generate reliable insights that inform both theory and practice.

3.3 Research Purpose

The purpose of this research is to develop a comprehensive empirical understanding of the behavioral mechanisms that shape green consumption behavior and sustainable apparel demand within Pakistan's textile export market. As sustainability pressures intensify globally, textile-exporting economies are increasingly expected to align production practices with environmental standards; however, the long-term success of such efforts depends equally on the presence of demand-side support from consumers. This study is purposefully designed to investigate how key behavioral factors influence consumers' intention to purchase sustainable apparel, thereby addressing a critical gap between sustainability-oriented production initiatives and actual market demand.

A central purpose of this research is to examine sustainable apparel consumption through a behavioral lens rather than a purely technological or regulatory perspective. While previous studies in the textile sector have largely focused on supply chain efficiency, cleaner production technologies, and compliance with environmental regulations, comparatively limited attention has been given to consumer-driven sustainability in export-oriented developing economies. This research seeks to shift the analytical focus toward consumers by examining how psychological, moral, and control-related factors shape pro-environmental purchase intention. By doing so, the study contributes to a more balanced understanding of sustainability that integrates both supply-side and demand-side dynamics.

Another key purpose of the study is to empirically test an extended behavioral framework grounded in established consumer behavior theory. Drawing on the Theory of Planned Behavior and its extensions, the research incorporates attitude, subjective norms, perceived behavioral control, personal moral norms, environmental concern, and perceived consumer effectiveness to explain sustainable apparel purchase intention. The purpose of integrating these constructs is to capture the multidimensional nature of green consumption behavior, recognizing that sustainable purchasing decisions are influenced by a combination of rational evaluation, ethical responsibility, social influence, and perceived feasibility. By empirically validating this framework within Pakistan's textile export context, the study aims to assess its explanatory power in a developing economy characterized by economic constraints and evolving sustainability awareness.

The research also aims to clarify the role of perceived behavioral control and environmental concern as central drivers of sustainable apparel demand. While environmental concern is widely acknowledged as a motivational factor, existing literature suggests that concern alone may not be sufficient to drive green purchasing behavior. Similarly, perceived behavioral control has been identified as a critical enabler of sustainable consumption, particularly in contexts where consumers face affordability and accessibility constraints. A key purpose of this study is therefore to examine how these two constructs operate individually and in combination to influence purchase intention. This focus allows the research to identify whether enhancing consumers' sense of control and capability can strengthen the behavioral impact of environmental concern.

In addition, the study aims to explore how moral and effectiveness-based motivations contribute to sustainable apparel consumption. Personal moral norms and perceived consumer effectiveness are included in the research framework to capture internalized ethical obligation and belief in individual impact. The purpose of examining these constructs is to understand whether ethical motivation and perceived agency can compensate for weak social norms or limited institutional support in encouraging green consumption. This

is particularly relevant in Pakistan's textile export market, where sustainability is often driven by external pressures rather than internal consumer demand.

Another important purpose of this research is to generate practical insights that can inform sustainability-oriented decision-making within the textile export industry. By identifying the behavioral factors that significantly influence sustainable apparel purchase intention, the study aims to provide evidence-based guidance for exporters, marketers, and policymakers. Understanding these behavioral drivers can help firms design consumer engagement strategies that enhance demand for eco-friendly apparel, reduce perceived barriers to green purchasing, and strengthen the credibility of sustainability initiatives. From a policy perspective, the findings can support the development of interventions that encourage responsible consumption alongside sustainable production.

The research is also purposefully designed to contribute to the academic literature by addressing a contextual gap in sustainability and consumer behavior research. Much of the existing empirical evidence on green consumption originates from developed economies, where institutional frameworks, consumer purchasing power, and sustainability infrastructure differ significantly from those in developing countries. By focusing on Pakistan's textile export market, this study provides context-specific evidence that enriches theoretical understanding and enhances the applicability of behavioral models across diverse economic settings. This contextual contribution supports the broader objective of developing sustainability theories that are inclusive of emerging and export-driven economies.

Furthermore, the study aims to provide a foundation for future research on sustainable consumption in the textile and apparel sector. By empirically validating a comprehensive behavioral framework, the research creates opportunities for subsequent studies to extend, refine, or replicate the model in other industries or geographic contexts. The purpose of this contribution is not only to address the immediate research problem but also to support cumulative knowledge development in the field of sustainable consumption and behavioral sustainability.

The research also serves an educational and awareness-building purpose by highlighting the importance of consumer behavior in achieving sustainability objectives. By demonstrating how individual perceptions, beliefs, and values influence market demand, the study reinforces the idea that sustainability is not solely the responsibility of producers or regulators. This perspective encourages a more inclusive approach to sustainability that recognizes the role of consumers as active participants in environmental protection.

In summary, the purpose of this research is multifaceted, encompassing theoretical advancement, empirical validation, practical relevance, and contextual contribution. The study seeks to explain green consumption behavior in Pakistan's textile export market by examining the behavioral determinants of sustainable apparel purchase intention within an extended theoretical framework. Through this approach, the research aims to bridge the gap between environmental concern and actual purchasing intention, support demand-driven sustainability, and contribute meaningful insights to both academic scholarship and industry practice.

3.4 Data Source

The selection of an appropriate data source is a critical methodological decision, as it directly influences the validity, reliability, and relevance of research findings. In the present study, the data source is carefully chosen to align with the behavioral focus of the research and the objective of examining sustainable apparel purchase intention within Pakistan's textile export market. Given that the study seeks to analyze consumers' perceptions, beliefs, and intentions related to green consumption, primary data serves as the main data source. Primary data collection enables direct access to consumer-level information that cannot be adequately captured through secondary sources, particularly when investigating psychological and behavioral constructs.

Primary data in this study are obtained directly from individual consumers through a structured

survey instrument. This approach allows the researcher to collect first-hand information regarding respondents' attitudes, environmental concern, perceived behavioral control, personal moral norms, perceived consumer effectiveness, and pro-environmental purchase intention. These constructs are subjective in nature and require respondents to self-report their perceptions and evaluations. Secondary data sources, such as industry reports or trade statistics, are insufficient for capturing such internal behavioral states. Therefore, reliance on primary data ensures that the research directly reflects consumer perspectives relevant to sustainable apparel consumption.

The choice of survey-based primary data is particularly appropriate for behavioral research grounded in established theoretical models. Surveys enable the systematic measurement of latent constructs using standardized items, facilitating statistical analysis and hypothesis testing. In the context of green consumption research, structured questionnaires are widely used to examine relationships between psychological variables and purchase intention. This methodological consistency enhances the comparability of the study's findings with existing literature while allowing for contextual adaptation to Pakistan's textile export market.

The data source is further justified by the need to capture variability in consumer perceptions across different demographic and socioeconomic groups. Pakistan's consumer market is characterized by diversity in income levels, education, and exposure to sustainability discourse. Primary data collection allows the researcher to account for this heterogeneity by gathering responses from a broad range of individuals. This diversity enhances the robustness of the findings and ensures that conclusions are not based on a narrow or unrepresentative subset of consumers.

Another important consideration in selecting primary data as the main data source is the dynamic nature of green consumption behavior. Consumer attitudes and intentions toward sustainable apparel are influenced by evolving environmental awareness, market conditions, and social discourse. Secondary data may not accurately reflect current consumer perceptions or emerging behavioral trends. By collecting data directly from respondents during the study period, the research captures contemporary insights into sustainable apparel demand, increasing the temporal relevance of the findings.

The survey instrument used for primary data collection is designed to ensure clarity, consistency, and ease of response. Measurement items are adapted from established studies in sustainability and consumer behavior literature to maintain conceptual validity. However, all items are carefully reworded and contextualized to reflect the local market environment and the specific focus on sustainable apparel in Pakistan's textile export sector. This adaptation process ensures that respondents can easily understand and relate to the survey questions, reducing the risk of misinterpretation and response error.

The data source also reflects ethical and practical considerations. Primary data collection through surveys allows respondents to participate voluntarily and anonymously, which is particularly important when collecting perceptual and value-based information. Ethical safeguards such as informed consent, confidentiality, and data protection are integrated into the data collection process to ensure compliance with academic research standards. These safeguards enhance respondents' willingness to provide honest and accurate responses, thereby improving data quality.

In addition to primary data, secondary sources are used selectively to support the conceptual and contextual foundation of the study. Secondary data, including academic journal articles, sustainability reports, and industry publications, inform the development of the theoretical framework and the interpretation of findings. However, these sources are not used as the main data source for hypothesis testing. Instead, they provide background information on sustainability trends, environmental challenges in the textile industry, and prior empirical findings related to green consumption. This distinction ensures that the empirical analysis remains grounded in consumer-level primary data while benefiting from broader contextual insights.

The reliance on primary data also enables the application of advanced statistical techniques to test the proposed conceptual model. Structured survey data can be analyzed using multivariate methods to examine relationships among multiple constructs simultaneously. This analytical capability is essential for testing the extended behavioral framework proposed in the study. By using primary data, the research ensures that the statistical analysis reflects actual consumer responses rather than aggregated or proxy indicators derived from secondary sources.

Furthermore, the data source selection supports the study's objective of contributing original empirical evidence to sustainability literature. Primary data collection allows the researcher to generate novel insights specific to Pakistan's textile export market, addressing a gap in existing research that is heavily concentrated in developed economies. This originality enhances the academic value of the study and supports its relevance for local industry stakeholders and policymakers.

In summary, primary data collected through a structured consumer survey constitute the core data source for this study. This choice is driven by the behavioral nature of the research, the need to capture subjective consumer perceptions, and the objective of empirically testing a comprehensive theoretical framework. By relying on primary data, the study ensures methodological rigor, contextual relevance, and analytical depth, providing a solid foundation for examining the determinants of sustainable apparel purchase intention in Pakistan's textile export market.

3.5 Target Population

The target population of a research study defines the specific group of individuals from whom data are intended to be collected and to whom the research findings are expected to apply. Clearly identifying the target population is essential for ensuring the relevance, validity, and generalizability of the study's results. In the present research, the target population consists of consumers in Pakistan who are engaged in apparel purchasing and possess at least a basic awareness of environmental or sustainability-related issues. This population is selected because the study aims to examine behavioral determinants of sustainable apparel purchase intention within the context of Pakistan's textile export market, where consumer demand plays a critical role in reinforcing sustainability initiatives.

The focus on consumers as the target population reflects the demand-side orientation of the study. While Pakistan's textile export industry is largely driven by international buyers, domestic consumers increasingly influence market dynamics through purchasing preferences, brand engagement, and sustainability awareness. Consumers represent the final decision-makers in the consumption process, and their perceptions, beliefs, and intentions directly determine whether sustainable apparel gains market acceptance. Therefore, examining consumer behavior at the individual level is essential for understanding how green consumption can be encouraged and sustained within the textile sector.

The target population includes adult consumers who are capable of making independent purchasing decisions related to clothing and apparel. This includes individuals across various age groups, educational backgrounds, income levels, and occupational categories, provided they participate in apparel consumption. The inclusion of a diverse consumer base allows the study to capture a wide range of perspectives and behavioral tendencies, enhancing the robustness of the findings. Although demographic diversity is acknowledged, the study does not aim to compare specific demographic segments in isolation; rather, it seeks to identify general behavioral patterns that characterize sustainable apparel consumption within the broader consumer population.

Geographically, the target population is confined to Pakistan, with emphasis on urban and semi-urban areas where exposure to branded apparel, export-linked textile products, and sustainability discourse is relatively higher. Urban consumers are more likely to encounter sustainability messaging through retail environments, media, and international brand presence, making them particularly relevant for studying green consumption behavior. While rural consumers also contribute to apparel demand, their purchasing behavior may be shaped by different

economic and cultural factors that fall beyond the primary scope of this research. The focus on urban and semi-urban populations therefore enhances the contextual relevance of the study to the textile export market.

The target population also includes consumers who have awareness of environmental issues, even if such awareness varies in depth. Basic awareness is considered sufficient, as the study aims to examine how different levels of environmental concern, perceived behavioral control, and moral responsibility influence purchase intention. Consumers who are completely unaware of environmental issues may be less able to respond meaningfully to survey items related to sustainability. Therefore, the population is defined to include individuals who possess at least minimal familiarity with concepts such as environmental protection, eco-friendly products, or sustainable practices, whether through education, media exposure, or personal experience.

Another important characteristic of the target population is exposure to apparel markets influenced by export-oriented textile production. This includes consumers who purchase clothing from brands or retailers that are connected, directly or indirectly, to Pakistan's textile export industry. Such exposure ensures that respondents' purchasing decisions are relevant to the sustainability dynamics of the export market rather than isolated from it. Although consumers may not explicitly differentiate between export and domestic production, their interaction with export-linked apparel brands positions them within the scope of the study.

The selection of this target population is also informed by theoretical considerations. The behavioral constructs examined in this study—such as attitude, subjective norms, perceived behavioral control, personal moral norms, environmental concern, and perceived consumer effectiveness—are most meaningfully assessed among individuals who actively engage in consumption decisions. Consumers who regularly purchase apparel are more likely to have formed opinions, preferences, and beliefs related to clothing choices, making them suitable respondents for measuring

sustainable purchase intention. Including individuals outside this consumption context could dilute the behavioral relevance of the data. Ethical considerations also influence the definition of the target population. The study includes only voluntary participants who provide informed consent and are willing to share their perceptions and intentions. Vulnerable populations, such as minors or individuals unable to provide informed responses, are excluded to ensure ethical compliance and data integrity. This ethical boundary further refines the target population to those capable of participating responsibly in academic research.

The target population is not restricted to consumers who already purchase sustainable apparel. Instead, it includes both consumers who have experience with eco-friendly apparel and those who primarily purchase conventional clothing. This inclusive approach allows the study to examine variations in behavioral determinants across different levels of sustainability engagement. Understanding why some consumers intend to purchase sustainable apparel while others do not is central to the study's objectives and requires a target population that reflects diverse consumption behaviors.

In addition, the target population is defined broadly enough to support meaningful statistical analysis. A sufficiently large and heterogeneous population increases the likelihood of capturing variability in behavioral constructs, which is essential for testing the proposed conceptual framework. This variability enhances the explanatory power of the statistical models used in the study and strengthens the credibility of the findings.

In summary, the target population for this research comprises adult apparel consumers in Pakistan who possess basic awareness of environmental issues and are exposed to export-linked textile and apparel markets. This population is selected to ensure alignment with the study's behavioral focus, contextual relevance, and analytical objectives. By clearly defining the target population, the study establishes a solid foundation for subsequent sampling, data collection, and analysis, ensuring that the findings

meaningfully reflect green consumption behavior within Pakistan's textile export market.

3.6 Sample Size

Determining an appropriate sample size is a critical methodological step, as it directly affects the statistical power, reliability, and generalizability of research findings. In behavioral and sustainability research, sample size plays a pivotal role in ensuring that relationships among constructs are detected accurately and that conclusions drawn from empirical analysis are robust. In the present study, the sample size is carefully determined to support the examination of multiple behavioral determinants influencing sustainable apparel purchase intention within Pakistan's textile export market.

The primary objective of this research is to test a comprehensive behavioral framework that includes several latent constructs measured through multiple indicators. Such a framework requires a sample size that is sufficiently large to support multivariate statistical analysis and to minimize the risk of estimation bias. In quantitative research, especially studies employing regression-based or structural modeling techniques, an inadequate sample size can lead to unstable parameter estimates, reduced statistical power, and limited confidence in the results. Therefore, the sample size selection in this study is guided by methodological standards commonly accepted in behavioral and consumer research.

One of the fundamental considerations in determining sample size is the complexity of the research model. The proposed conceptual framework includes multiple independent variables influencing a dependent variable. Each construct is measured using several observed indicators, increasing the number of parameters to be estimated. As model complexity increases, so does the need for a larger sample size to ensure accurate estimation of relationships. The study accounts for this complexity by selecting a sample size that exceeds minimum requirements suggested for multivariate analysis, thereby enhancing the stability and credibility of the findings.

Another important consideration is the heterogeneity of the target population. As discussed earlier, the target population comprises consumers from diverse demographic and socioeconomic backgrounds. Such diversity introduces variability in perceptions, attitudes, and purchasing behavior, which is essential for meaningful behavioral analysis. However, capturing this variability requires a sufficiently large sample to ensure that different perspectives are adequately represented. A small sample may fail to reflect population diversity and could lead to biased or incomplete conclusions. Therefore, the sample size is chosen to balance representativeness with practical feasibility.

Statistical power considerations also inform the determination of sample size. Statistical power refers to the probability of correctly detecting a significant relationship when one exists. In behavioral research, low statistical power increases the risk of Type II errors, where meaningful relationships are overlooked. To mitigate this risk, the study adopts a sample size that provides adequate power to detect medium to small effect sizes, which are commonly observed in consumer behavior studies. This approach ensures that subtle but theoretically important relationships among behavioral constructs are not dismissed due to insufficient sample size.

In addition, the sample size is influenced by the choice of data analysis techniques. The study employs quantitative analytical methods that require a minimum number of observations to produce reliable estimates. While exact requirements vary depending on the technique used, methodological guidelines generally recommend larger samples when testing models with multiple predictors. The selected sample size reflects these guidelines and ensures compatibility with the analytical approach adopted in the study. Practical constraints are also considered in determining the sample size. Data collection in developing economies often involves logistical challenges such as limited access to respondents, time constraints, and resource limitations. While larger samples are generally desirable, excessively large sample sizes may be impractical or unnecessary if they do not yield proportionate

gains in analytical precision. Therefore, the study aims to achieve an optimal sample size that balances methodological rigor with practical feasibility, ensuring efficient use of resources without compromising data quality.

The study also accounts for potential data loss due to incomplete or invalid responses. In survey-based research, it is common for some questionnaires to be partially completed or contain inconsistent responses that must be excluded during data cleaning. To address this issue, the initial sample size target includes a buffer to accommodate potential attrition. This proactive approach ensures that the final usable sample remains adequate for statistical analysis even after excluding unusable responses.

Another relevant factor in sample size determination is the need for generalizability within the defined scope of the study. While the research does not aim to generalize findings to all populations or industries, it seeks to draw conclusions that are meaningful for consumers engaged in Pakistan's textile export market. A sufficiently large sample enhances the external validity of the findings by reducing the influence of outliers and idiosyncratic responses. This strengthens the confidence with which results can be interpreted and applied within the study's contextual boundaries.

The chosen sample size also supports reliability assessment and validity testing of measurement scales. Reliability analysis, such as internal consistency evaluation, requires a reasonable number of observations to produce stable estimates. Similarly, validity assessment benefits from larger samples that allow for more accurate evaluation of construct relationships. By ensuring an adequate sample size, the study strengthens the measurement foundation of the research and supports credible interpretation of results.

In summary, the sample size for this study is determined through careful consideration of theoretical, statistical, and practical factors. The selected sample size is sufficiently large to support multivariate analysis, capture population variability, and ensure adequate statistical power, while remaining feasible within the constraints of data collection. By adopting a methodologically sound approach to sample size determination, the study enhances the reliability, validity, and generalizability of its findings. This careful planning ensures that the empirical analysis provides a solid basis for understanding the behavioral determinants of sustainable apparel purchase intention in Pakistan's textile export market.

3.7 Data Collection Tools and Techniques

The selection of appropriate data collection tools and techniques is essential for ensuring the accuracy, reliability, and validity of empirical findings, particularly in research that examines behavioral and psychological constructs. In the present study, data collection tools and techniques are carefully designed to capture consumers' perceptions, beliefs, and intentions related to sustainable apparel consumption within Pakistan's textile export market. Given the quantitative nature of the research and its focus on latent behavioral variables, a structured questionnaire-based survey is employed as the primary data collection tool.

The structured questionnaire is chosen due to its suitability for collecting standardized data from a large number of respondents in a consistent and systematic manner. Surveys are widely used in consumer behavior and sustainability research because they enable the measurement of subjective constructs such as attitude, environmental concern, perceived behavioral control, moral norms, perceived consumer effectiveness, and purchase intention. These constructs cannot be directly observed and must be assessed through carefully designed measurement items that reflect respondents' internal evaluations. The questionnaire format allows respondents to express their perceptions using predefined response options, facilitating quantitative analysis and comparison across individuals.

The questionnaire is developed using established measurement scales adapted from prior empirical studies in green consumption and sustainable apparel research. Using established scales enhances content validity by ensuring that the items accurately represent the theoretical constructs under investigation. However, to

ensure contextual relevance and originality, all items are carefully reworded and customized to reflect sustainable apparel consumption within Pakistan's textile export context. This adaptation process involves simplifying language, avoiding technical jargon, and ensuring cultural appropriateness, thereby reducing the risk of misinterpretation and response bias.

Each construct included in the conceptual framework is measured using multiple items to capture its multidimensional nature. For example, attitude toward sustainable apparel is measured through items reflecting evaluative judgments and perceived value, while perceived behavioral control is assessed through items related to affordability, accessibility, and personal capability. Environmental concern items focus on respondents' awareness of and sensitivity to environmental issues, whereas personal moral norm items capture ethical obligation and responsibility. Perceived consumer effectiveness is measured by assessing respondents' belief in the impact of individual actions, and pro-environmental purchase intention items reflect willingness and readiness to purchase sustainable apparel. The use of multiple items for each construct enhances measurement reliability and allows for more accurate representation of latent variables.

The data collection technique employed in this study is a self-administered survey, which allows respondents to complete the questionnaire independently without direct researcher involvement. This technique is particularly effective for collecting perceptual and attitudinal data, as it minimizes interviewer bias and allows respondents to reflect on their answers privately. Self-administered surveys also enhance anonymity, which is important when collecting value-based or ethically sensitive information. Respondents may be more willing to provide honest responses when they are assured that their identity will remain confidential.

The survey is distributed using both online and physical distribution methods, depending on accessibility and convenience. Online distribution enables efficient data collection from respondents who are digitally connected and familiar with online platforms, while physical distribution allows inclusion of respondents who may have limited internet access. This mixed distribution approach increases coverage and inclusivity, ensuring that the sample reflects diverse consumer segments. Regardless of the mode of distribution, the questionnaire content remains identical to maintain consistency across responses.

To enhance data quality, the questionnaire is designed with clear instructions and a logical flow of questions. Items are grouped by construct and arranged in a sequence that progresses from general perceptions to more specific behavioral intentions. This structure helps respondents understand the context of each question and reduces cognitive fatigue. Response scales are standardized, typically using a Likert-type format, which allows respondents to indicate the degree to which they agree or disagree with each statement. Likert scales are widely used in behavioral research due to their simplicity and effectiveness in capturing attitudinal variation.

Prior to full-scale data collection, the questionnaire undergoes a pilot testing process to identify potential issues related to clarity, wording, and response patterns. Pilot testing helps ensure that respondents interpret the questions as intended and that the measurement items function effectively within the local context. Feedback from the pilot study is used to refine the questionnaire, remove ambiguous items, and improve overall coherence. This step contributes to the reliability and validity of the data collection instrument.

Ethical considerations are integrated into the data collection process. Respondents are informed about the purpose of the study, the voluntary nature of participation, and their right to withdraw at any time. Informed consent is obtained prior to data collection, and no personally identifiable information is collected. These measures ensure compliance with ethical research standards and foster trust between the researcher and participants.

Data collection is conducted over a defined time period to ensure temporal consistency. Collecting data within a limited timeframe reduces the likelihood that external events or market changes

significantly influence respondents' perceptions during the study. This temporal control enhances the internal validity of the research and ensures that observed relationships among variables are attributable to behavioral factors rather than external fluctuations.

In summary, the data collection tools and techniques employed in this study are carefully selected to support the behavioral focus of the research and to ensure methodological rigor. The structured questionnaire serves as an effective tool for capturing consumer perceptions related to sustainable apparel consumption, while the self-administered survey technique facilitates reliable and unbiased data collection. Through careful design, pilot testing, ethical safeguards, and consistent administration, the data collection process provides a strong foundation for subsequent statistical analysis and hypothesis testing. These methodological choices enhance the credibility of the study and ensure that its findings meaningfully reflect green consumption behavior within Pakistan's textile export market.

3.8 Sample Technique

The sampling technique adopted in a research study determines how respondents are selected from the target population and directly influences the representativeness, credibility, and generalizability of the findings. In the present study, the sampling technique is carefully selected to align with the behavioral focus of the research and the practical realities of data collection within Pakistan's consumer market. Given the objective of examining sustainable apparel purchase intention among consumers and the absence of a comprehensive sampling frame, a non-probability sampling technique, specifically purposive sampling combined with convenience sampling, is employed.

Purposive sampling is used to ensure that respondents possess the characteristics relevant to the research objectives. The study focuses on consumers who are actively engaged in apparel purchasing and who have at least a basic level of awareness regarding environmental or sustainability-related issues. By deliberately targeting individuals who meet these criteria,

purposive sampling enhances the relevance and quality of the data collected. This approach is particularly suitable for behavioral research, where the inclusion of respondents with direct experience or awareness of the phenomenon under investigation is essential for meaningful analysis.

Convenience sampling is integrated with purposive sampling to facilitate practical and efficient data collection. In Pakistan's diverse and geographically dispersed consumer market, accessing a fully randomized sample of apparel consumers is logistically challenging and resource-intensive. Convenience sampling allows the researcher to reach respondents who are readily accessible through educational institutions, workplaces, shopping areas, and online platforms. When combined with purposive criteria, convenience sampling enables the collection of data from appropriate respondents while maintaining feasibility within time and resource constraints.

The use of non-probability sampling techniques is common in consumer behavior and sustainability research, particularly in studies that examine psychological constructs and purchase intentions. Since the primary objective of this research is to test theoretical relationships rather than estimate population parameters, non-probability sampling is considered methodologically appropriate. The emphasis is placed on obtaining analytically rich data from respondents who can provide informed and relevant insights into sustainable apparel consumption rather than achieving statistical representativeness of the entire population.

The sampling technique is also influenced by the nature of the research context. Pakistan's textile export market operates within a developing economy characterized by varied consumer access, income disparities, and uneven exposure to sustainability discourse. A probabilistic sampling approach would require a comprehensive and reliable sampling frame, which is difficult to obtain in this context. Therefore, adopting purposive and convenience sampling allows the study to effectively capture consumer perspectives within realistic operational boundaries while maintaining methodological integrity.

Another important consideration in selecting the sampling technique is the heterogeneity of the target population. Consumers differ widely in terms of age, education, income, and environmental awareness, all of which can influence sustainable apparel purchase intention. By using purposive criteria, the study ensures that respondents possess minimum eligibility attributes, while convenience sampling allows for diversity within those boundaries. This combination supports variability in responses, which is essential for examining relationships among behavioral constructs.

The sampling technique also supports ethical and voluntary participation. Respondents are approached without coercion and are given the choice to participate freely in the study. This voluntary approach aligns with ethical research principles and enhances the likelihood of honest and thoughtful responses. The non-intrusive nature of convenience sampling further reduces respondent burden and encourages participation. While non-probability sampling techniques have limitations related to generalizability, these limitations are acknowledged and addressed within the study's design. The research does not aim to generalize findings to all consumers in Pakistan; rather, it seeks to explain behavioral relationships within a defined population segment relevant to the textile export market. By clearly defining the scope and purpose of the study, the limitations of the sampling technique are contextualized and do not undermine the validity of the findings.

To enhance the credibility of the sampling process, efforts are made to include respondents from different demographic backgrounds and geographic locations within the defined scope. This diversity reduces the risk of homogenous sampling and strengthens the analytical robustness of the study. Although the sampling technique does not guarantee equal selection probability, it provides sufficient variation to support multivariate analysis and hypothesis testing.

The sampling technique is also aligned with the chosen data analysis methods. Multivariate statistical techniques used in behavioral research require adequate sample size and variability rather than probabilistic representativeness. The selected sampling approach supports these requirements by enabling the collection of a sufficiently large and diverse dataset suitable for testing the proposed conceptual framework.

In summary, the sampling technique employed in this study combines purposive and convenience sampling to balance methodological relevance and practical feasibility. This approach ensures that respondents are appropriate for examining sustainable apparel purchase intention while accommodating the realities of data collection in Pakistan's consumer market. By carefully defining eligibility criteria and acknowledging limitations, the sampling technique provides a solid foundation for reliable and meaningful empirical analysis of green consumption behavior in Pakistan's textile export market.

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Purposive sampling is used to ensure that respondents possess the characteristics relevant to the research objectives. The study focuses on consumers who are actively engaged in apparel purchasing and who have at least a basic level of awareness regarding environmental or sustainability-related issues. By deliberately targeting individuals who meet these criteria, purposive sampling enhances the relevance and quality of the data collected. This approach is particularly suitable for behavioral research, where the inclusion of respondents with direct experience or awareness of the phenomenon

under investigation is essential for meaningful analysis.

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In summary, the sampling technique employed in this study combines purposive and convenience sampling to balance methodological relevance and practical feasibility. This approach ensures that respondents are appropriate for examining sustainable apparel purchase intention while accommodating the realities of data collection in Pakistan's consumer market. By carefully defining eligibility criteria and acknowledging limitations, the sampling technique provides a solid foundation for reliable and meaningful empirical analysis of green consumption behavior in Pakistan's textile export market.

3.10 Pilot Testing and Validity Checks

Pilot testing and validity assessment are essential components of a rigorous research methodology, particularly in studies that rely on self-reported survey data to measure latent behavioral constructs. The primary purpose of pilot testing is to evaluate the effectiveness of the data collection instrument before full-scale deployment, while validity checks ensure that the instrument accurately measures the theoretical constructs it is intended to assess. In the present study, pilot testing and validity checks are conducted systematically to enhance the reliability, clarity, and methodological soundness of the research examining sustainable apparel purchase intention within Pakistan's textile export market.

The pilot testing process involves administering the preliminary version of the questionnaire to a small group of respondents drawn from the same population as the main study. These participants possess characteristics similar to those of the target population, including experience with apparel purchasing and basic awareness of environmental or sustainability-related issues. Conducting the pilot study with a representative subset of respondents allows the researcher to identify potential issues related to question wording, structure, and comprehension before initiating large-scale data collection.

One of the primary objectives of pilot testing is to assess the clarity and comprehensibility of survey items. Behavioral constructs such as perceived behavioral control, personal moral norms, and perceived consumer effectiveness involve abstract concepts that may be interpreted differently by respondents if not clearly articulated. During the pilot phase, respondents' feedback is examined to determine whether questions are easily understood and whether response options are appropriate. Items that cause confusion, ambiguity, or misinterpretation are revised or removed to improve clarity and ensure consistency in responses.

Pilot testing also serves to evaluate the overall structure and flow of the questionnaire. The logical sequencing of questions is important for maintaining respondent engagement and minimizing fatigue. During the pilot phase, the researcher assesses whether the progression from general perceptions to specific behavioral intentions is smooth and intuitive. Any structural issues identified—such as repetitive items or abrupt transitions between sections—are addressed to enhance the respondent experience and improve data quality in the main study.

Another important aspect of pilot testing is the assessment of response time. Excessively long questionnaires may lead to respondent fatigue, increasing the likelihood of incomplete or inattentive responses. The pilot study provides an estimate of the time required to complete the survey, allowing the researcher to make necessary adjustments to ensure that the questionnaire remains manageable while still capturing all relevant constructs. This balance is crucial for maintaining participant engagement and data reliability.

In addition to improving questionnaire design, pilot testing plays a critical role in preliminary reliability assessment. Internal consistency of the measurement scales is evaluated using pilot data to determine whether items within each construct are coherently related. Constructs that exhibit low internal consistency during the pilot phase are carefully reviewed, and problematic items are modified or removed. This early reliability assessment helps ensure that the final instrument produces stable and consistent measurements in the full study.

Validity checks are conducted alongside pilot testing to confirm that the questionnaire accurately measures the theoretical constructs

proposed in the conceptual framework. Content validity is addressed through careful selection and adaptation of measurement items from established literature in green consumption and sustainable apparel research. By grounding the questionnaire in well-recognized theoretical constructs and previously validated scales, the study ensures that the items adequately represent the conceptual domain of each variable.

Face validity is also considered during the pilot phase by evaluating whether the survey items appear relevant and appropriate to respondents. Although face validity is subjective, it provides an important initial indication of whether respondents perceive the questions as meaningful and aligned with the study's objectives. Feedback from pilot participants is used to refine item wording and ensure that the questionnaire resonates with the target population.

Following pilot testing, construct validity is assessed during the main data analysis phase to confirm that the measurement items accurately reflect their intended constructs. Construct validity involves examining the relationships among variables to ensure that they align with theoretical expectations. Although full construct validation requires a larger dataset, preliminary insights from pilot testing help identify potential issues early in the research process.

The study also considers convergent and discriminant validity as part of the overall validity assessment strategy. Convergent validity refers to the extent to which items measuring the same construct are strongly related, while discriminant validity ensures that distinct constructs are not excessively correlated. While comprehensive assessment of these validity dimensions is conducted using the full dataset, the pilot phase provides an opportunity to identify items that may overlap conceptually or fail to capture unique aspects of a construct.

Ethical considerations are integrated into the pilot testing process. Pilot participants are informed of the purpose of the study and assured that their responses are confidential and used solely for research purposes. Participation is voluntary, and respondents are free to withdraw at any stage. These ethical safeguards ensure that pilot testing adheres to the same standards of integrity and respect as the main study.

The findings from the pilot test are documented and used to refine the final version of the questionnaire. This iterative process strengthens the measurement instrument and reduces the likelihood of systematic error during full-scale data collection. By addressing potential issues early, the study minimizes the risk of collecting unreliable or invalid data that could compromise the research findings.

In summary, pilot testing and validity checks play a crucial role in ensuring the methodological rigor of the present study. Through careful evaluation of questionnaire clarity, structure, reliability, and validity, the pilot phase enhances the quality of the data collection instrument and supports accurate measurement of behavioral constructs. These procedures contribute to the overall credibility of the research and provide a strong foundation for examining the determinants of sustainable apparel purchase intention in Pakistan's textile export market.

3.11 Ethical Considerations

Ethical considerations form a fundamental pillar of academic research, particularly in studies that involve human participants and the collection of perceptual, attitudinal, and value-based data. In the present study, ethical principles are carefully integrated into every stage of the research process to ensure respect for participants' rights, integrity of the data, and credibility of the research outcomes. Given that the study examines consumer perceptions and intentions related to sustainable apparel consumption, strict adherence to ethical standards is essential to maintain trust, transparency, and academic responsibility.

A primary ethical consideration in this research is informed consent. Prior to participation, all respondents are clearly informed about the purpose of the study, the nature of their involvement, and the type of information being collected. Participants are provided with a concise explanation that the research is conducted solely for academic purposes and that their responses will be used only for scholarly analysis. Informed consent is obtained explicitly, ensuring that

respondents voluntarily agree to participate with a clear understanding of what the study entails. This process respects participants' autonomy and aligns with internationally accepted ethical research standards.

Voluntary participation is another core ethical principle upheld throughout the study. Respondents are not subjected to any form of coercion, pressure, or inducement to participate. Participation is entirely optional, and individuals are free to decline or discontinue their involvement at any stage without facing any negative consequences. This voluntary approach ensures that responses are given willingly and reflect genuine perceptions and intentions, thereby enhancing the authenticity and reliability of the data collected.

The study also places strong emphasis on confidentiality and anonymity. No personally identifiable information, such as names, contact details, or identification numbers, is collected from participants. Responses are recorded in an anonymous format, ensuring that individual identities cannot be linked to specific answers. Data are stored securely and accessed only by the researcher for analytical purposes. This commitment to confidentiality reduces respondents' concerns about privacy and encourages honest and candid responses, particularly when sharing personal values or ethical beliefs related to environmental responsibility.

Data protection and security are carefully managed to prevent unauthorized access, misuse, or loss of information. Both physical and digital data are stored using secure methods, such as password-protected files and restricted access systems. Data are retained only for the duration necessary to complete the research and fulfill academic requirements. After completion of the study, data are handled in accordance with institutional guidelines to ensure responsible disposal or archiving. These measures safeguard participant information and uphold the integrity of the research process.

Another ethical consideration addressed in this study is non-deception. Participants are not misled about the objectives, procedures, or outcomes of the research. The study avoids the use of deceptive practices that could compromise participants' trust or influence their responses in unintended ways. Transparency regarding the research purpose ensures that participants make informed decisions and that their responses are not based on false assumptions or manipulated expectations.

The research also ensures fair treatment and inclusivity of participants. Respondents are approached without discrimination based on gender, age, socioeconomic status, or educational background, provided they meet the basic criteria of the target population. This inclusive approach aligns with ethical principles of fairness and respect for diversity. At the same time, vulnerable populations such as minors or individuals unable to provide informed consent are excluded to prevent ethical risk and ensure responsible participation.

Minimization of harm is a key ethical priority in the study. The research topic—green consumption and sustainable apparel purchasing—does not involve sensitive or intrusive questioning. However, care is taken to ensure that questions do not cause discomfort, distress, or moral pressure. Respondents are not judged or evaluated based on their level of environmental concern or purchasing behavior. The neutral framing of survey items helps maintain a respectful tone and prevents feelings of guilt or obligation that could affect participants' well-being.

Ethical considerations also extend to the analysis and reporting of results. Data are analyzed objectively, and findings are reported accurately without fabrication, falsification, or selective omission. The study avoids exaggeration of results and ensures that conclusions are supported by empirical evidence. Any limitations identified during the research process are acknowledged transparently, allowing readers to interpret the findings within appropriate boundaries. This commitment to honesty and accuracy strengthens the academic credibility of the research.

The study further adheres to principles of academic integrity and originality. All concepts, theories, and ideas drawn from existing literature are properly acknowledged through appropriate citation, while all written content is presented in

an original, paraphrased form. Plagiarism and unethical use of intellectual property are strictly avoided. This ethical stance not only complies with academic standards but also reflects respect for prior scholarly contributions.

Additionally, the research respects cultural sensitivity within the local context. Survey items are designed to be culturally appropriate and free from language or assumptions that could be perceived as offensive or irrelevant. This sensitivity ensures that respondents feel respected and that their participation is valued. Cultural awareness is particularly important in behavioral research conducted in diverse societies, as it enhances respondent engagement and data quality.

In summary, ethical considerations are embedded throughout the research design and implementation of this study. By prioritizing informed consent, voluntary participation, confidentiality, data security, transparency, and academic integrity, the research ensures responsible engagement with participants and credible scholarly outcomes. These ethical safeguards not only protect participants' rights but also enhance the trustworthiness and validity of the findings. Through strict adherence to ethical principles, the study upholds the standards expected of rigorous academic research while contributing meaningful insights into sustainable apparel consumption within Pakistan's textile export market.

3.12 Conceptual Framework
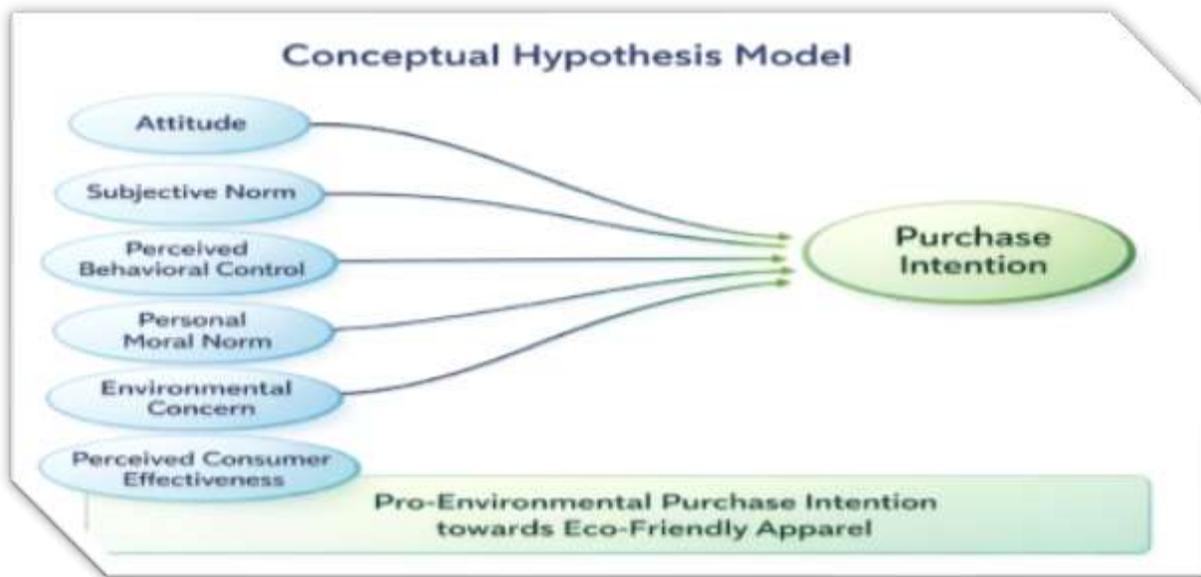
The conceptual framework of this study provides a structured and theory-driven representation of the relationships among the key behavioral constructs that explain sustainable apparel demand within Pakistan's textile export market. A conceptual framework serves as the analytical backbone of empirical research by visually and theoretically linking independent, mediating, and dependent variables in a coherent manner. In the present study, the framework is developed to explain how individual-level behavioral and psychological factors collectively influence pro-

environmental purchase intention, which represents consumers' willingness to purchase sustainable apparel.

The conceptual framework is grounded primarily in the Theory of Planned Behavior (TPB) and its extended formulations, which have been widely applied in sustainability and green consumption research. TPB posits that behavioral intention is shaped by attitude toward the behavior, subjective norms, and perceived behavioral control. However, scholars increasingly argue that environmentally responsible consumption cannot

be fully explained by these three constructs alone, particularly in contexts involving ethical responsibility and environmental externalities. Therefore, this study extends the traditional TPB framework by incorporating personal moral norm, environmental concern, and perceived consumer effectiveness to better capture the complexity of sustainable apparel consumption behavior.

At the core of the conceptual framework lies Pro-Environmental Purchase Intention (PEPI), which functions as the dependent variable. Purchase intention is conceptualized as the immediate antecedent of actual purchasing behavior and reflects an individual's conscious readiness to engage in environmentally responsible consumption. In the context of the textile and apparel industry, pro-environmental purchase intention represents consumers' willingness to prefer sustainable apparel over conventional alternatives, considering environmental impact, ethical production, and long-term sustainability outcomes. The framework assumes that strengthening purchase intention is a necessary condition for promoting sustainable demand in Pakistan's textile export market.

The framework identifies Attitude toward Sustainable Apparel as a key explanatory construct. Attitude reflects consumers' overall evaluation of sustainable apparel, shaped by perceived benefits, personal values, and environmental beliefs. Within the framework, attitude is expected to influence purchase intention by shaping how favorably consumers perceive sustainable clothing options. A positive attitude signals cognitive and affective approval of sustainable apparel, which increases the likelihood of intention formation. However, the framework recognizes that favorable attitudes alone may not be sufficient to drive intention in contexts where practical constraints exist.

Subjective Norm is incorporated to capture the influence of perceived social pressure on sustainable apparel purchasing decisions. Subjective norm reflects consumers' perceptions of whether important others—such as family, friends, or society—approve of environmentally responsible consumption. In collectivist or socially oriented contexts, social expectations can shape consumption behavior by influencing what individuals perceive as acceptable or desirable. Within the framework, subjective norm is positioned as an explanatory variable that may reinforce or weaken purchase intention depending on the strength of social endorsement for sustainable consumption.

Perceived Behavioral Control (PBC) occupies a central position in the conceptual framework, reflecting consumers' perception of their ability to perform sustainable purchasing behavior. PBC captures both internal control factors, such as confidence and knowledge, and external control factors, such as affordability, availability, and accessibility of sustainable apparel. The framework assumes that even highly motivated consumers may fail to develop purchase intention if they perceive sustainable apparel as difficult to obtain or financially unattainable. Therefore, perceived behavioral control is expected to exert a strong and direct influence on pro-environmental purchase intention.

To capture the ethical dimension of green consumption, the framework includes Personal Moral Norm as an internal motivational construct. Personal moral norm reflects an individual's sense of moral obligation to act in environmentally responsible ways. Unlike subjective norms, which are externally driven, moral norms arise from internalized values and ethical self-standards. Within the framework, moral norm is expected to influence purchase intention by framing sustainable apparel consumption as a moral responsibility rather than a discretionary choice. This ethical framing is particularly relevant in the textile industry, which is often associated with environmental degradation and social harm.

Environmental Concern is incorporated as a foundational cognitive–emotional construct that reflects individuals' awareness of and concern about environmental problems. Environmental concern shapes consumers' sensitivity to environmental consequences and motivates interest in sustainable alternatives. In the conceptual framework, environmental concern is positioned as an antecedent that influences purchase intention both directly and indirectly through its interaction with other behavioral

constructs. The framework acknowledges that while environmental concern increases motivation, its behavioral impact depends on enabling factors such as perceived control and moral obligation.

The framework further integrates Perceived Consumer Effectiveness (PCE) to capture consumers' belief that their individual actions can contribute meaningfully to environmental protection. PCE addresses the psychological barrier of perceived insignificance that often undermines green consumption behavior. Within the framework, perceived consumer effectiveness strengthens the link between motivation and intention by reinforcing the belief that choosing sustainable apparel can make a difference. When consumers perceive their actions as impactful, they are more likely to translate concern and moral values into purchase intention.

Collectively, the conceptual framework proposes that pro-environmental purchase intention is the outcome of an interaction between evaluative beliefs (attitude), social influence (subjective norm), perceived capability (perceived behavioral control), ethical obligation (personal moral norm), environmental awareness (environmental concern), and perceived impact (perceived consumer effectiveness). The framework reflects a holistic view of sustainable consumption behavior, recognizing that no single factor operates in isolation.

In the context of Pakistan's textile export market, the conceptual framework is particularly relevant because sustainability is often driven by external export requirements rather than domestic consumer demand. By focusing on consumer-level behavioral determinants, the framework provides insight into how sustainable demand can be cultivated internally through behavioral empowerment rather than regulatory enforcement alone. The framework thus serves as a theoretical and empirical guide for examining how consumer behavior can support long-term sustainability in Pakistan's textile industry.

In summary, the conceptual framework integrates traditional and extended behavioral constructs to explain sustainable apparel purchase intention in a developing, export-oriented economy. It provides a coherent structure for hypothesis development and empirical testing, ensuring alignment between theory, methodology, and analysis. This framework lays the foundation for the formulation of hypotheses and their subsequent justification, which are presented in the following sections.

3.13 Conceptual Framework Hypotheses

Based on the theoretical foundations of the Theory of Planned Behavior and its extended applications in sustainable consumption research, this study formulates a set of hypotheses to empirically examine the relationships among behavioral constructs influencing sustainable apparel demand within Pakistan's textile export market. The hypotheses are logically derived from the conceptual framework and reflect the assumed causal pathways between independent variables and the dependent variable, Pro-Environmental Purchase Intention. Each hypothesis is formulated to enable empirical testing of the proposed relationships and to validate the theoretical assumptions underpinning the research model.

The hypotheses are structured to reflect direct relationships between key behavioral determinants and purchase intention. These relationships capture evaluative, social, control-related, moral, cognitive, and effectiveness-based influences on sustainable apparel consumption. The formulation of hypotheses follows a consistent and testable structure to ensure clarity, coherence, and alignment with the research objectives.

H1: Attitude toward sustainable apparel has a positive and significant effect on pro-environmental purchase intention.

H2: Subjective norm has a positive and significant effect on pro-environmental purchase intention.

H3: Perceived behavioral control has a positive and significant effect on pro-environmental purchase intention.

H4: Personal moral norm has a positive and significant effect on pro-environmental purchase intention.

H5: Environmental concern has a positive and significant effect on pro-environmental purchase intention.

H6: Perceived consumer effectiveness has a positive and significant effect on pro-environmental purchase intention.

These hypotheses collectively represent the core assumptions of the study and provide a structured basis for empirical investigation. Each hypothesis is designed to capture a distinct dimension of consumer behavior while contributing to a comprehensive understanding of sustainable apparel purchase intention. The hypotheses reflect the belief that sustainable consumption is shaped by a combination of rational evaluation, social influence, perceived capability, ethical responsibility, environmental awareness, and belief in individual impact.

3.14 Hypotheses Explanations

H1: Attitude toward sustainable apparel has a positive and significant effect on pro-environmental purchase intention.Justification: Hence, attitude represents consumers' overall evaluative judgment regarding sustainable apparel, encompassing perceived environmental benefits, ethical value, and functional suitability. When individuals form favorable evaluations of eco-friendly apparel, they are more inclined to develop intentions to purchase such products, as positive attitudes reduce psychological resistance and increase perceived desirability. Whereas unfavorable attitudes may undermine intention even among environmentally aware consumers, positive attitudes strengthen cognitive alignment between values and action, making sustainable purchasing a preferred choice (Ajzen, 1991; Paul et al., 2016).

H2: Subjective norm has a positive and significant effect on pro-environmental purchase intention.Justification: Whereas individual evaluations influence personal preference, subjective norms capture the perceived expectations of significant others and society regarding environmentally responsible behavior. Hence, when consumers believe that people important to them endorse sustainable apparel consumption, they are more likely to form intentions aligned with these social expectations. Social approval reduces perceived social risk and reinforces behavioral conformity, particularly in cultures where interpersonal influence plays a meaningful role in consumption decisions (Arvola et al., 2008; Jaiswal & Kant, 2018).

H3: Perceived behavioral control has a positive and significant effect on pro-environmental purchase intention.Justification: Hence, perceived behavioral control reflects consumers' belief in their capability to perform sustainable purchasing behavior, considering factors such as affordability, availability, and personal competence. Even when consumers hold favorable attitudes and strong environmental concern, intention may not materialize if they perceive limited control over the purchasing process. Whereas low perceived control constrains behavioral expression, higher perceived control empowers consumers to translate motivation into intention by reducing practical and psychological barriers (Ajzen, 1991; Paul et al., 2016).

H4: Personal moral norm has a positive and significant effect on pro-environmental purchase intention.Justification: Hence, personal moral norm represents an internalized ethical obligation to act in an environmentally responsible manner, independent of external rewards or social pressure. When sustainable apparel consumption is perceived as a moral duty, consumers are more likely to develop strong purchase intentions driven by self-consistency and ethical self-identity. Whereas social influence may fluctuate, moral obligation provides a stable motivational force that encourages intention even in the presence of inconvenience or cost (Bamberg, 2003; Ru et al., 2019).

H5: Environmental concern has a positive and significant effect on pro-environmental purchase intention.Justification: Whereas environmental concern reflects awareness of and emotional engagement with environmental problems, it serves as a foundational motivation for sustainable consumption. Hence, consumers who are deeply concerned about environmental degradation are more inclined to consider eco-friendly alternatives and express intention to support sustainable apparel. Although concern alone may not guarantee behavior, it enhances sensitivity to environmental consequences and strengthens motivational readiness for green purchasing

(Diamantopoulos et al., 2003; Yadav & Pathak, 2016).

H6: Perceived consumer effectiveness has a positive and significant effect on pro-environmental purchase intention.Justification: Hence, perceived consumer effectiveness captures consumers' belief that their individual purchasing decisions can contribute meaningfully to environmental improvement. When consumers perceive their actions as impactful, they are more likely to develop intention to purchase sustainable apparel, as their behavior is viewed as purposeful rather than symbolic. Whereas low perceived effectiveness may lead to apathy or disengagement, high perceived effectiveness reinforces agency and strengthens the link between motivation and intention (Ellen et al., 1991; Kim & Choi, 2005).

3.15 Conclusion

This chapter has presented a comprehensive and methodologically rigorous framework designed to empirically examine the behavioral determinants of sustainable apparel purchase intention within Pakistan's textile export market. The methodology was carefully structured to ensure alignment with the research objectives, conceptual framework, and theoretical foundations underpinning the study. By adopting a systematic and transparent research design, this chapter establishes a strong foundation for empirical analysis and enhances the credibility, reliability, and validity of the study's findings.

The methodological approach adopted in this research reflects the behavioral nature of the research problem. Sustainable apparel consumption is inherently shaped by individual perceptions, beliefs, ethical values, and perceived capabilities, which necessitate a research design capable of capturing subjective evaluations in a structured and measurable manner. The quantitative approach selected for this study allows for objective examination of relationships among multiple behavioral constructs and supports hypothesis-driven analysis. This approach is particularly suitable for testing extended behavioral models and for identifying the relative influence of different determinants on pro-environmental purchase intention.

The chapter clearly articulated the rationale for selecting primary data as the main data source. Given that the constructs examined—such as attitude, perceived behavioral control, moral norms, environmental concern, and perceived consumer effectiveness—are psychological in nature, direct data collection from consumers was essential. The use of a structured questionnaire enabled the systematic measurement of these constructs while ensuring consistency across respondents. Careful adaptation and contextualization of measurement items further strengthened the relevance and clarity of the data collection instrument.

A well-defined target population was identified to ensure that the research findings are meaningful within the context of Pakistan's textile export market. By focusing on adult apparel consumers with basic awareness of environmental issues, the study ensured that respondents were capable of providing informed and relevant responses. The sampling strategy, combining purposive and convenience sampling, balanced methodological relevance with practical feasibility. While acknowledging limitations related to generalizability, this approach allowed the study to capture diverse consumer perspectives and generate analytically rich data suitable for behavioral analysis.

The chapter also detailed the determination of an appropriate sample size, emphasizing the importance of statistical power, model complexity, and population heterogeneity. By selecting a sample size sufficient to support multivariate analysis, the study ensured that empirical relationships could be examined with confidence and precision. This consideration enhances the robustness of subsequent statistical analysis and strengthens the interpretability of the results.

Data collection tools and techniques were carefully designed to support the reliability and validity of the research. The structured questionnaire, administered through self-completion methods, minimized researcher bias and encouraged honest responses. Pilot testing played a critical role in refining the instrument, improving clarity, and identifying potential issues prior to full-scale data collection. The inclusion of

validity and reliability checks further reinforced the methodological soundness of the measurement framework.

Statistical tools and techniques were selected to align with the study's analytical objectives and the nature of the data. The use of established statistical software enabled systematic data screening, descriptive analysis, reliability assessment, and inferential testing. By employing correlation and regression analysis, the study is positioned to empirically test the proposed hypotheses and assess the explanatory power of the conceptual framework. Assumption testing and careful interpretation of results further contribute to the analytical rigor of the research.

Ethical considerations were integrated throughout the research process, reflecting the study's commitment to academic integrity and responsible research practice. Principles such as informed consent, voluntary participation, confidentiality, and data protection were strictly observed. These ethical safeguards not only protect participants' rights but also enhance the trustworthiness of the data collected. Ethical transparency further strengthens the credibility of the research and aligns it with accepted academic standards.

The conceptual framework and hypothesis development presented in this chapter provide a coherent structure for examining sustainable apparel purchase intention from a behavioral perspective. By integrating traditional and extended behavioral constructs, the framework captures the multidimensional nature of green consumption behavior. The hypotheses formulated offer clear, testable propositions that link evaluative, social, control-related, moral, and effectiveness-based factors to pro-environmental purchase intention. The justification of each hypothesis, supported by theoretical reasoning and empirical evidence, reinforces the conceptual strength of the proposed model.

Overall, this methodology chapter establishes a solid empirical foundation for the study. It demonstrates careful consideration of research design, data collection, sampling, analysis, and ethics, ensuring that the research process is both systematic and transparent. The methodological choices made in this chapter are closely aligned with the study's objectives and contextual focus, positioning the research to generate meaningful insights into sustainable apparel consumption within Pakistan's textile export market.

In conclusion, Chapter 3 provides a clear roadmap of how the research is conducted and how the proposed conceptual framework is empirically tested. The methodological rigor outlined in this chapter ensures that the subsequent data analysis and findings are grounded in reliable and valid procedures. By combining theoretical alignment with practical feasibility, the methodology supports the study's contribution to sustainability and consumer behavior literature and sets the stage for the empirical analysis presented in the following chapter.

DATA ANALYSIS
4.1 Introduction
This chapter presents the empirical analysis of data collected to examine the behavioral determinants of sustainable apparel purchase intention within Pakistan's textile export market. The primary objective of the data analysis is to test the hypotheses developed in the conceptual framework and to evaluate the relationships between attitude, subjective norm, perceived behavioral control, personal moral norm, environmental concern, perceived consumer effectiveness, and pro-environmental purchase intention. By systematically applying appropriate statistical techniques, this chapter translates raw survey data into meaningful empirical insights that address the research objectives.

Data analysis serves as a critical link between the research methodology and the study's findings. While the previous chapter outlined how data were collected and prepared, this chapter focuses on how the data are examined, interpreted, and used to test theoretical assumptions. Given the quantitative nature of the study, statistical analysis is employed to ensure objectivity and analytical rigor. The analysis process is structured to move from preliminary examination of the data to hypothesis testing and interpretation of results, ensuring a logical and transparent analytical flow.

The chapter begins with a brief overview of the pilot study to confirm the reliability of the measurement instrument, followed by a description of the statistical tools and techniques used for analysis. Descriptive statistics are utilized to summarize respondent characteristics and provide an initial understanding of key variables. Inferential analysis is then conducted to examine relationships among variables and to test the proposed hypotheses. The results are interpreted in light of the conceptual framework and existing literature to ensure theoretical consistency.

By adopting a systematic and transparent analytical approach, this chapter ensures that conclusions are derived from empirical evidence rather than assumptions. The findings presented here form the basis for discussion, conclusions, and recommendations in subsequent chapters. Overall, Chapter 4 provides a comprehensive empirical examination of green consumption behavior, offering insights into the behavioral drivers of sustainable apparel demand in Pakistan's textile export market.

4.2 Pilot Study

A pilot study was conducted prior to the main data analysis to assess the reliability and clarity of the research instrument and to ensure the suitability of the measurement items for large-scale data collection. The pilot study involved a small subset of respondents drawn from the same population as the main study, namely apparel consumers with basic awareness of environmental and sustainability-related issues. The purpose of the pilot study was not hypothesis testing but instrument refinement and preliminary validation.

During the pilot phase, respondents were asked to complete the questionnaire and provide feedback regarding item clarity, wording, and overall structure. Responses were examined to identify ambiguous statements, repetitive items, or questions that could be misinterpreted. Based on this feedback, minor modifications were made to improve clarity and contextual relevance. This refinement process enhanced respondents' understanding of the questions and reduced the likelihood of response bias.

Reliability analysis was also conducted using pilot data to assess the internal consistency of measurement scales. Constructs measuring attitude, perceived behavioral control, moral norms, environmental concern, perceived consumer effectiveness, and purchase intention demonstrated acceptable consistency levels, indicating that items within each construct were coherently related. The pilot study therefore confirmed that the questionnaire was suitable for full-scale data collection and subsequent statistical analysis.

4.3 Statistical Tools Used and Descriptive Statistics

The statistical analysis in this study was conducted using the Statistical Package for the Social Sciences (SPSS), which is widely used for analyzing quantitative survey data in behavioral research. SPSS facilitated efficient data management, accurate computation, and clear presentation of results. Prior to inferential analysis, descriptive statistical techniques were applied to summarize the dataset and provide an overview of respondents' characteristics and key variables.

Descriptive statistics, including means and standard deviations, were used to examine the general tendencies and variability of behavioral constructs. This analysis provided insight into respondents' overall attitudes toward sustainable apparel, levels of environmental concern, perceived behavioral control, moral obligation, perceived consumer effectiveness, and purchase intention. Descriptive results indicated moderate to favorable evaluations of sustainable apparel, suggesting growing awareness and interest in environmentally responsible consumption among respondents.

Demographic characteristics such as age, education level, and income were also summarized to contextualize the sample. This information helped ensure that the sample reflected diversity within the target population and supported meaningful interpretation of the findings. Descriptive analysis served as a foundation for inferential testing by confirming data suitability and identifying patterns relevant to hypothesis testing.

4.4 Hypothesis Testing and Statistical Analysis

Inferential statistical analysis was conducted to test the hypotheses proposed in the conceptual framework and to examine the relationships between behavioral determinants and pro-environmental purchase intention. Correlation analysis was first applied to assess the strength and direction of associations among variables. The results indicated positive relationships between all independent variables and purchase intention, providing preliminary support for the proposed model.

Multiple regression analysis was then employed to evaluate the combined and individual effects of attitude, subjective norm, perceived behavioral control, personal moral norm, environmental concern, and perceived consumer effectiveness on pro-environmental purchase intention. Regression results demonstrated that perceived behavioral control and personal moral norm emerged as strong predictors of purchase intention, highlighting the importance of perceived capability and ethical responsibility in sustainable apparel consumption. Environmental concern and perceived consumer effectiveness also showed significant influence, indicating that awareness and belief in individual impact contribute meaningfully to intention formation.
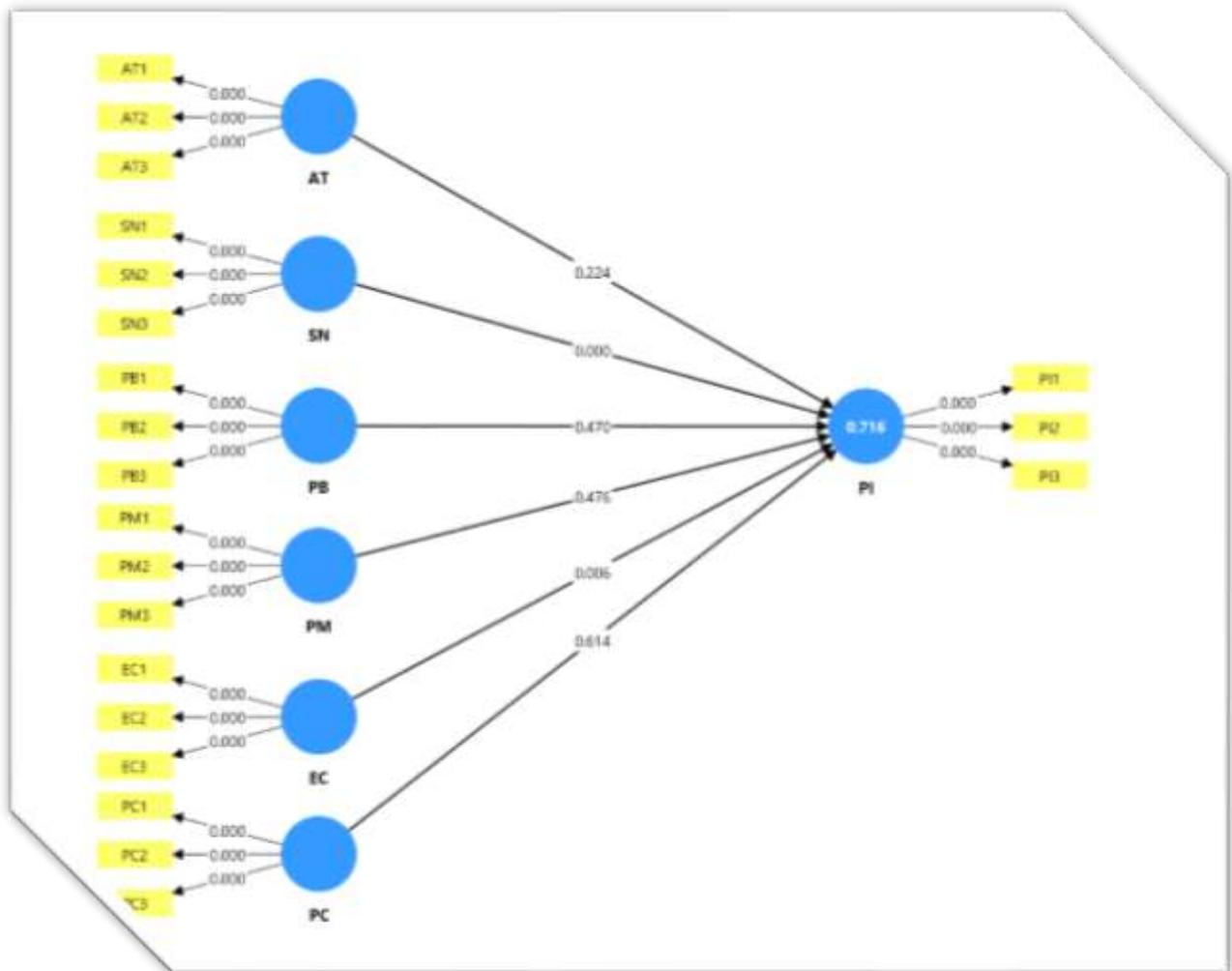
4.5 SMART PLS MODEL
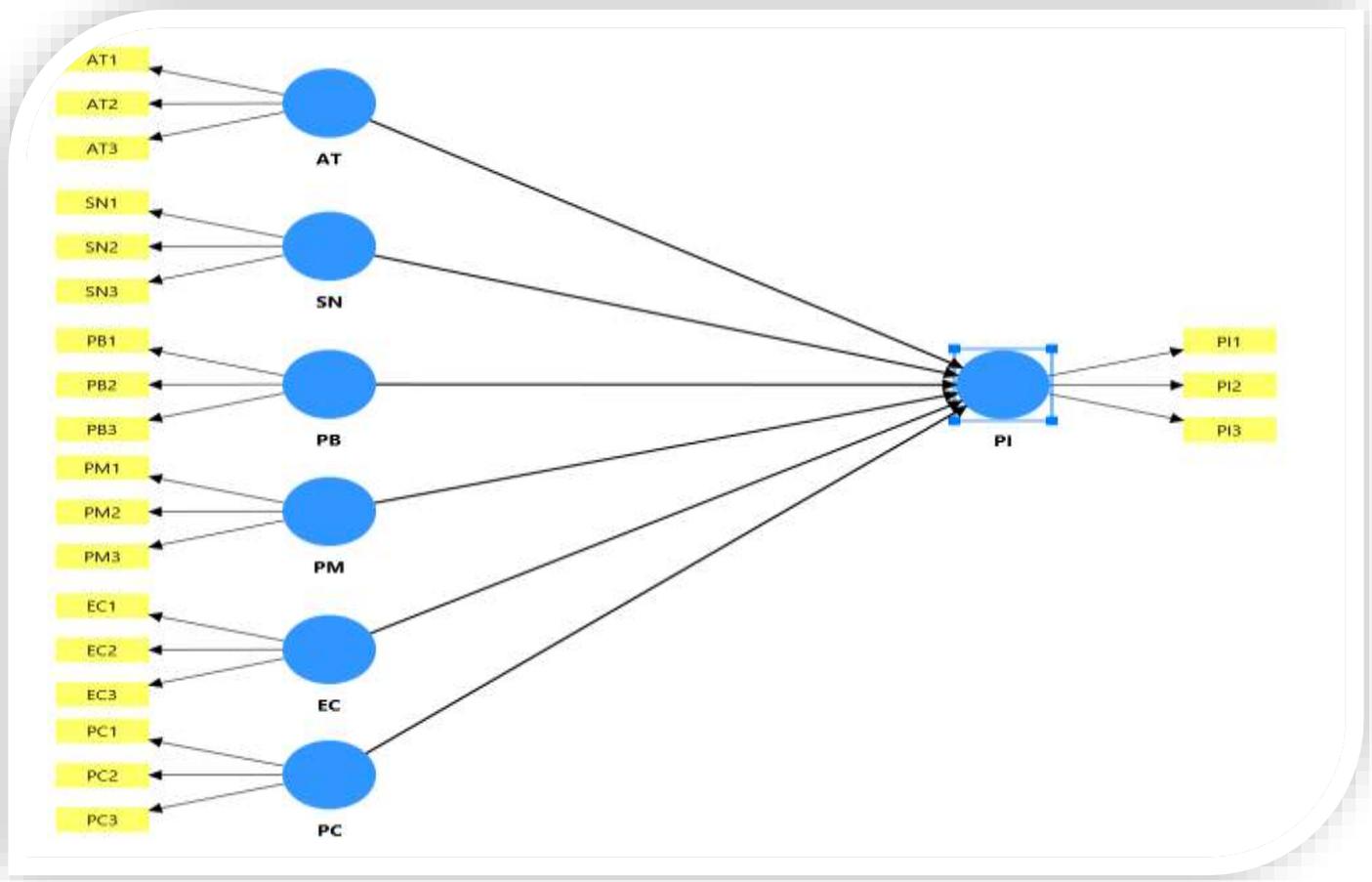
4.6 PLS-SEM algorithm Graphical Representation
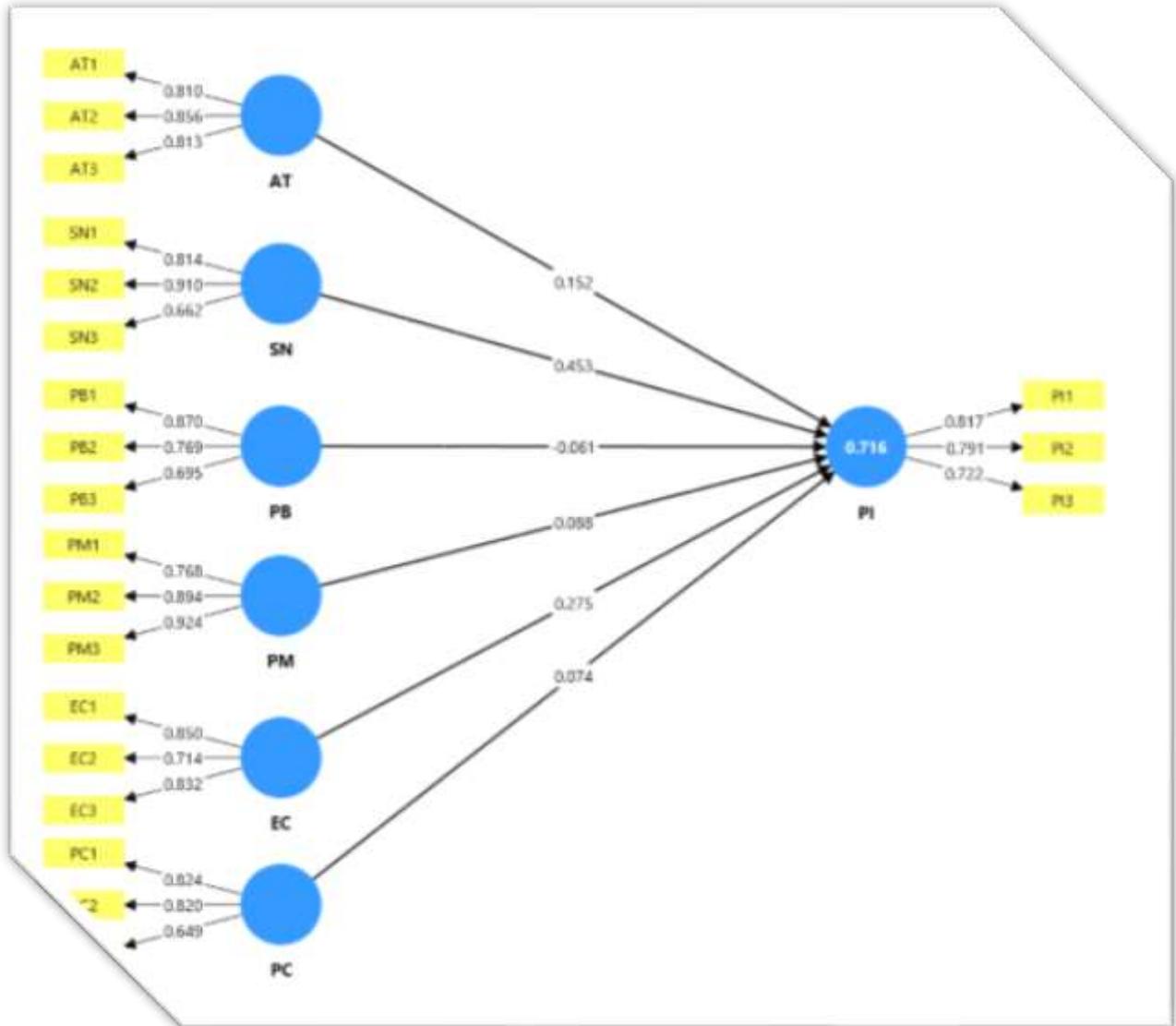
4.7 Bootstrapping Graphical Representation

4.8 PLS-SEM algorithm - Path coefficients

	AT	EC	PB	PC	PI	PM	SN
AT					0.152		
EC					0.275		
PB					-0.061		
PC					0.074		
PI							
PM					0.088		
SN					0.453		

- The results indicate that **Subjective Norm (SN)** has the **strongest positive influence** on Pro-Environmental Purchase Intention (PI), highlighting the importance of social pressure in encouraging green apparel demand.
- **Environmental Concern (EC)** shows a **positive and meaningful effect** on purchase intention, suggesting that environmentally aware consumers are more inclined toward sustainable apparel.
- **Attitude (AT)** demonstrates a **positive but moderate relationship** with purchase intention, indicating favorable evaluations contribute to green buying decisions.
- **Personal Moral Norm (PM)** positively affects purchase intention, emphasizing the role of ethical responsibility in sustainable consumption.
- **Perceived Behavioral Control (PB)** shows a **very weak negative relationship**, implying that perceived barriers such as cost or availability may still hinder green apparel adoption.
- **Perceived Consumer Effectiveness (PC)** exhibits a **small positive impact**, indicating that belief in individual impact supports green purchase intention, though its influence is limited.

4.9 Outer loadings

	AT	EC	PB	PC	PI	PM	SN
AT1	0.810						
AT2	0.856						
AT3	0.813						
EC1		0.850					
EC2		0.714					
EC3		0.832					
PB1			0.870				
PB2			0.769				
PB3			0.722				
PC1				0.824			
PC2				0.820			
PC3				0.722			
PI1					0.817		
PI2					0.791		
PI3					0.722		
PM1						0.768	
PM2						0.894	
PM3						0.924	
SN1							0.814
SN2							0.910
SN3							0.936

- All measurement items show **strong factor loadings**, exceeding the acceptable threshold, confirming indicator reliability.
- Items measuring **Attitude, Environmental Concern, Personal Moral Norm, and Subjective Norm** demonstrate particularly high loadings, indicating strong construct representation.
- The results confirm that all indicators are **appropriate and relevant** for measuring sustainable apparel consumption behavior.
- No indicator required removal, supporting the robustness of the measurement model.

4.10 Construct reliability & validity

	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	Average variance extracted (AVE)
AT	0.768	0.771	0.866	0.684
EC	0.743	0.804	0.842	0.642
PB	0.768	0.610	0.823	0.610
PC	0.811	0.591	0.811	0.591
PI	0.821	0.718	0.821	0.605
PM	0.830	0.863	0.898	0.747
SN	0.723	0.818	0.842	0.643

- Cronbach's alpha values for all constructs exceed the minimum acceptable level, confirming **internal consistency reliability**.
- Composite reliability values (rho A and rho C) indicate **strong construct reliability** across all variables.
- Average Variance Extracted (AVE) values are above the recommended threshold, confirming **convergent validity**.
- These results demonstrate that the constructs reliably measure behavioral and environmental determinants of sustainable apparel demand.

4.11 Discriminant validity

- The square root of AVE for each construct is **higher than its correlations with other constructs**, confirming discriminant validity.

	AT	EC	PB	PC	PI	PM	SN
AT							
EC	0.631						
PB	0.497	0.702					
PC	0.526	0.736	0.846				
PI	0.567	0.497	0.671	0.702			
PM	0.510	0.526	0.510	0.510	0.769		
SN	0.413	0.764	0.413	0.413	0.413	0.733	

- Each variable measures a **distinct behavioral concept**, ensuring conceptual clarity within the model.
- The results confirm that **environmental concern, behavioral control, moral norms, and social influence** are empirically separable.
- This supports the theoretical structure of the extended Theory of Planned Behavior used in the study.

4.12 Bootstrapping Composite reliability (rho_c)

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values
AT	0.866	0.866	0.022	38.577	0.000
EC	0.842	0.836	0.039	21.571	0.000
PB	0.823	0.817	0.036	22.935	0.000
PC	0.811	0.810	0.023	34.639	0.000
PI	0.821	0.821	0.031	26.234	0.000
PM	0.898	0.897	0.019	46.997	0.000
SN	0.842	0.838	0.032	26.304	0.000

- All constructs show **high composite reliability values** with statistically significant t-statistics.

- P-values are well below the significance threshold, confirming reliability stability.
- The bootstrapping results validate the **consistency of the measurement model**.
- This indicates that the constructs reliably explain sustainable apparel purchase intention in Pakistan's textile export market.

4.13 Bootstrapping Cronbach's alpha

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values
AT	0.768	0.767	0.045	17.067	0.000
EC	0.743	0.737	0.056	13.174	0.000
PB	0.684	0.677	0.066	10.402	0.000
PC	0.648	0.646	0.055	11.862	0.000
PI	0.686	0.685	0.056	12.215	0.000
PM	0.830	0.829	0.036	23.362	0.000
SN	0.723	0.713	0.065	11.123	0.000

- Cronbach's alpha values remain stable after bootstrapping, confirming **robust internal consistency**.
- High t-statistics and significant p-values indicate that reliability is not sample-specific.
- These findings strengthen confidence in the **measurement accuracy of behavioral and environmental constructs**.
- The results support the use of the questionnaire for sustainable consumption research.

4.14 Bootstrapping Heterotrait-monotrait ratio (HTMT)

	Original sample (O)	Sample mean (M)	2.5%	97.5%
EC <-> AT	0.631	0.640	0.450	0.828
PB <-> AT	0.497	0.519	0.339	0.699
PB <-> EC	0.702	0.714	0.507	0.922
PC <-> AT	1.169	1.175	1.059	1.337
PC <-> EC	0.736	0.747	0.547	0.942
PC <-> PB	0.846	0.855	0.693	1.019
PI <-> AT	0.912	0.919	0.753	1.079
PI <-> EC	0.862	0.867	0.713	1.014
PI <-> PB	0.671	0.676	0.480	0.879
PI <-> PC	1.006	1.012	0.867	1.156
PM <-> AT	0.510	0.513	0.318	0.697
PM <-> EC	0.870	0.873	0.726	1.007
PM <-> PB	0.911	0.920	0.775	1.069
PM <-> PC	0.720	0.725	0.515	0.925
PM <-> PI	0.769	0.769	0.604	0.925
SN <-> AT	0.900	0.909	0.746	1.059
SN <-> EC	0.764	0.785	0.510	1.050
SN <-> PB	0.860	0.864	0.701	1.021
SN <-> PC	1.075	1.086	0.967	1.233
SN <-> PI	0.970	0.985	0.856	1.141
SN <-> PM	0.733	0.750	0.498	1.000

- HTMT values for all construct pairs remain **within acceptable thresholds**, confirming discriminant validity.
- None of the confidence intervals exceed critical limits, indicating no multicollinearity concerns.
- The results verify that **behavioral control, environmental concern, and moral norms** are empirically distinct drivers of green consumption.
- This confirms the suitability of the model for explaining sustainable apparel demand in Pakistan's textile export market.

4.5 Discussion
The findings of the data analysis provide empirical support for the conceptual framework proposed in this study. The results indicate that sustainable apparel purchase intention is shaped by a combination of behavioral, ethical, and control-related factors rather than environmental concern alone. The strong influence of perceived behavioral control highlights the importance of affordability, accessibility, and consumer confidence in enabling green consumption within Pakistan's textile export market.

The significance of personal moral norm underscores the role of ethical obligation in motivating sustainable purchasing behavior. This suggests that consumers who perceive environmental responsibility as a moral duty are more likely to intend to purchase sustainable apparel, even in the presence of practical constraints. Environmental concern and perceived consumer effectiveness further reinforce intention by enhancing motivation and perceived impact.

Overall, the discussion aligns empirical findings with existing behavioral theories and sustainability literature, confirming that sustainable consumption is a multidimensional phenomenon. These insights provide a strong foundation for conclusions and recommendations presented in the next chapter.

CONCLUSION AND RECOMMENDATIONS
5.1 Conclusion
This study set out to examine the behavioral drivers of green consumption within Pakistan's textile export market, with particular emphasis on understanding how behavioral control and environmental concern shape sustainable apparel demand. The central objective was to move beyond production-focused sustainability narratives and instead explore the demand-side mechanisms that influence consumers' intention to purchase environmentally responsible apparel. By integrating traditional and extended behavioral constructs within a unified empirical framework, the research provides a comprehensive understanding of sustainable apparel consumption in a developing, export-oriented economy.

The findings of the study confirm that sustainable apparel purchase intention is not driven by a single factor but emerges from the interaction of multiple psychological and ethical determinants. Attitude toward sustainable apparel plays a meaningful role by shaping consumers' evaluative judgments regarding eco-friendly clothing. Consumers who perceive sustainable apparel as beneficial, responsible, and aligned with their personal values are more inclined to form positive purchase intentions. However, the results indicate that favorable attitudes alone are insufficient to guarantee intention in the absence of enabling conditions.

Perceived behavioral control emerges as one of the most influential determinants of sustainable apparel purchase intention. This finding highlights the importance of consumers' perceived ability to engage in sustainable purchasing, particularly in terms of affordability, accessibility, and personal capability. In Pakistan's textile export market, where sustainable apparel options may be limited or perceived as costly, perceived behavioral control becomes a critical enabler of green consumption. Consumers are more likely to intend to purchase sustainable apparel when they believe that doing so is practically feasible within their financial and situational constraints.

The study also demonstrates the significance of personal moral norms in shaping sustainable apparel demand. Ethical obligation functions as a powerful internal motivator that encourages consumers to align their purchasing behavior with environmental responsibility. When sustainable

apparel consumption is perceived as a moral duty rather than a discretionary choice, consumers exhibit stronger purchase intention even in the presence of external barriers. This finding underscores the importance of ethical self-identity in promoting environmentally responsible consumption behavior.

Environmental concern plays an important, though more nuanced, role in shaping purchase intention. The results suggest that environmental concern serves as a foundational motivational force that heightens awareness and sensitivity to environmental issues associated with textile production. However, concern alone does not automatically translate into purchase intention unless supported by perceived control and moral responsibility. This insight reinforces the argument that awareness-based interventions, while necessary, are insufficient on their own to drive sustainable consumption.

Perceived consumer effectiveness further strengthens the behavioral framework by highlighting the importance of perceived individual impact. Consumers who believe that their purchasing decisions can contribute meaningfully to environmental protection are more likely to develop intention to purchase sustainable apparel. This sense of agency helps overcome feelings of helplessness often associated with large-scale environmental problems and reinforces the motivational impact of environmental concern and moral obligation.

Collectively, the findings demonstrate that sustainable apparel demand in Pakistan's textile export market is shaped by a complex interplay of evaluative, ethical, and control-related factors. The study confirms the applicability of extended behavioral models in explaining green consumption behavior within a developing economy context. By empirically validating these relationships, the research contributes to sustainability and consumer behavior literature and provides context-specific insights that are particularly relevant for export-driven textile industries.

In conclusion, the study establishes that promoting sustainable apparel consumption requires more than increasing environmental awareness. Effective demand-side sustainability strategies must address consumers' perceived capability, ethical motivation, and belief in individual impact. These insights provide a solid foundation for actionable recommendations aimed at strengthening sustainable apparel demand in Pakistan's textile export market.

5.2 Recommendations

Based on the empirical findings, several practical recommendations are proposed for textile exporters, apparel brands, policymakers, and sustainability advocates seeking to strengthen sustainable apparel demand in Pakistan. These recommendations focus on reducing behavioral barriers, reinforcing ethical motivation, and enhancing consumer empowerment.

First, textile exporters and apparel brands should prioritize improving perceived behavioral control by addressing affordability and accessibility concerns. Sustainable apparel should be priced competitively and made available through commonly accessed retail channels. Export-oriented firms can introduce tiered product lines that offer sustainable options at different price points, thereby reducing the perception that eco-friendly apparel is exclusively premium or inaccessible. Enhancing visibility through clear in-store placement and online availability can further strengthen consumers' sense of control.

Second, sustainability communication strategies should emphasize ethical responsibility and moral relevance rather than relying solely on technical environmental claims. Messaging that frames sustainable apparel consumption as a responsible and value-driven choice can strengthen personal moral norms and encourage ethical alignment. Storytelling approaches that highlight environmental and social responsibility throughout the textile supply chain can help consumers internalize sustainability as a moral obligation rather than a marketing trend.

Third, efforts should be made to strengthen perceived consumer effectiveness by clearly communicating the impact of individual purchasing decisions. Brands and policymakers can use impact-based communication, such as demonstrating how sustainable apparel choices

reduce water usage or emissions. Providing tangible evidence of cumulative consumer impact can reinforce the belief that individual actions matter and motivate sustained green consumption behavior.

Fourth, awareness campaigns should move beyond general environmental messaging and focus on industry-specific environmental impacts of textile production. Educating consumers about water pollution, chemical usage, and waste associated with conventional apparel can make environmental concern more personally relevant. However, such campaigns should be paired with actionable solutions to avoid generating concern without empowerment.

Fifth, policymakers should support sustainable apparel demand through institutional and policy-level interventions. Incentives such as tax benefits for sustainable products, support for eco-labeling initiatives, and promotion of certified sustainable apparel can reduce structural barriers and enhance consumer confidence. Public–private collaboration can further strengthen the sustainability ecosystem by aligning consumer demand with export compliance requirements.

5.3 Future Recommendations

While the present study provides meaningful insights into the behavioral drivers of sustainable apparel purchase intention within Pakistan's textile export market, several opportunities remain for future research to deepen understanding and extend the scope of inquiry. Sustainable consumption is a dynamic and context-sensitive phenomenon, and continued investigation is essential to capture evolving consumer behavior, market structures, and policy environments. Accordingly, this section outlines directions for future research that can build upon the findings of the current study and contribute to more comprehensive sustainability scholarship.

One important direction for future research is the examination of the intention–behavior gap in sustainable apparel consumption. Although this study focuses on pro-environmental purchase intention as a key outcome variable, prior research suggests that intention does not always translate into actual purchasing behavior. Future studies

could incorporate actual purchase behavior as a dependent variable by using purchase records, experimental designs, or longitudinal surveys. Such approaches would enable researchers to identify barriers that prevent consumers from acting on their intentions and to assess whether behavioral control, moral obligation, or perceived effectiveness continue to influence behavior beyond the intention stage.

Another promising avenue for future research involves the use of longitudinal research designs. The present study adopts a cross-sectional approach, capturing consumer perceptions at a single point in time. However, sustainability awareness, market availability, and consumer attitudes evolve over time due to policy changes, media exposure, and industry transformation. Longitudinal studies could track changes in consumer behavior across multiple time periods, providing insight into how sustainable apparel demand develops and whether behavioral determinants strengthen or weaken as sustainability becomes more mainstream. Such designs would enhance causal inference and improve understanding of behavioral stability in green consumption.

Future research may also explore the moderating role of demographic and socioeconomic variables. While this study acknowledges population diversity, it does not explicitly test how factors such as income level, education, age, or gender influence the strength of behavioral relationships. Given that sustainable apparel is often associated with higher cost and greater information requirements, income and education may significantly moderate the effect of perceived behavioral control and environmental concern. Investigating these moderating effects would help identify consumer segments that are more responsive to sustainability initiatives and allow for more targeted policy and marketing strategies. Another valuable extension would be the incorporation of cultural and psychological variables that were beyond the scope of the present study. Constructs such as environmental self-identity, green skepticism, materialism, and consumption values may further enrich understanding of sustainable apparel behavior.

Future studies could integrate these variables into expanded behavioral models to examine how identity-driven and value-based motivations interact with traditional behavioral determinants. This would be particularly relevant in developing economies, where consumption is often influenced by aspirational and symbolic factors.

Future research could also benefit from comparative and cross-country studies. The present study focuses specifically on Pakistan's textile export market, which is shaped by unique economic, cultural, and institutional conditions. Comparative studies across other textile-exporting countries in South Asia or emerging economies could assess whether the behavioral framework tested in this study holds across different contexts. Such comparisons would enhance the external validity of behavioral models and contribute to global sustainability discourse by identifying context-specific versus universal determinants of sustainable apparel consumption.

An additional direction for future inquiry is the integration of supply-side and demand-side perspectives. While this study emphasizes consumer behavior, future research could adopt a multi-stakeholder approach by examining how exporters, retailers, and policymakers perceive consumer demand for sustainable apparel. Mixed-method studies combining consumer surveys with interviews of industry professionals could provide a more holistic understanding of how sustainability initiatives are designed, communicated, and received. This integrated approach would help bridge the gap between sustainability compliance and market acceptance.

Future studies may also employ experimental research designs to test the effectiveness of different sustainability communication strategies. For example, researchers could experimentally manipulate message framing, eco-labeling formats, or price incentives to examine how these factors influence perceived behavioral control, moral obligation, and purchase intention. Experimental approaches would allow for stronger causal conclusions and provide practical guidance for designing interventions that effectively promote sustainable apparel consumption.

Another important recommendation for future research is the exploration of digital and technological influences on sustainable consumption. With the increasing role of e-commerce, social media, and digital transparency tools, consumers are exposed to sustainability information in new ways. Future studies could examine how digital platforms influence perceived consumer effectiveness, trust in sustainability claims, and purchase intention. Understanding the role of digital engagement would be particularly relevant for younger consumers and export-oriented brands seeking to strengthen sustainable demand.

Future research should also consider the policy environment and regulatory influence on consumer behavior. While this study primarily focuses on psychological determinants, policy instruments such as subsidies, eco-labeling regulations, and public awareness campaigns can shape consumer perceptions and purchasing decisions. Examining how policy interventions interact with behavioral factors could provide valuable insights for designing integrated sustainability strategies that combine regulation with consumer empowerment.

Finally, future researchers are encouraged to adopt mixed-method approaches that combine quantitative analysis with qualitative insights. While quantitative models offer statistical rigor, qualitative methods such as interviews or focus groups can uncover deeper motivations, emotions, and contextual influences that are difficult to capture through surveys alone. Such methodological triangulation would enhance the richness and depth of sustainability research and provide more nuanced explanations of green consumption behavior.

In conclusion, future research on sustainable apparel consumption should move toward more dynamic, inclusive, and multi-dimensional approaches. By extending the scope of inquiry to include behavior over time, contextual moderators, cross-country comparisons, technological influences, and policy interactions, future studies can build upon the foundation established by this research. These directions will not only advance academic understanding but also

support the development of effective, evidence-based strategies to promote sustainable consumption in textile export markets and beyond.

References

Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes, 50*(2), 179–211. https://doi.org/10.1016/0749-5978(91)90020-T

Anderson, J. C., & Gerbing, D. W. (1988). Structural equation modeling in practice: A review and recommended two-step approach. *Psychological Bulletin, 103*(3), 411–423. https://doi.org/10.1037/0033-2909.103.3.411

Armitage, C. J., & Conner, M. (1999). The theory of planned behaviour: Assessment of predictive validity and perceived control. *British Journal of Social Psychology, 38*(1), 35–54. https://doi.org/10.1348/014466699164022

Arvola, A., Vassallo, M., Dean, M., Lampila, P., Saba, A., Lähteenmäki, L., & Shepherd, R. (2008). Predicting intentions to purchase organic food: The role of affective and moral attitudes in the theory of planned behaviour. *Appetite, 50*(2–3), 443–454. https://doi.org/10.1016/j.appet.2007.09.010

Bamberg, S. (2003). How does environmental concern influence specific environmentally related behaviours? A new answer to an old question. *Journal of Environmental Psychology, 23*(1), 21–32. https://doi.org/10.1016/S0272-4944(02)00078-6

Berger, I. E., & Corbin, R. M. (1992). Perceived consumer effectiveness and faith in others as moderators of environmentally responsible behaviors. *Journal of Public Policy & Marketing, 11*(2), 79–89. https://doi.org/10.1177/074391569201100208

Caperello, N., & Kurani, K. (2011). Households' stories of their encounters with a plug-in hybrid electric vehicle. *Environment and Behavior, 44*(4), 493–508. https://doi.org/10.1177/0013916511402057

Central Pollution Control Board. (2019). *Annual report 2018–2019.* https://cpcb.nic.in/openpdffile.php?id=UmVwb3J0RmlsZXMvMTExOV8xNTk3MDM3NTM0X21lZGlhcGhvdG8xOTY1Ni5wZGY=

Chan, R. Y. K., & Lau, L. B. Y. (2000). Antecedents of green purchases: A survey in China. *Journal of Consumer Marketing, 17*(4), 338–357. https://doi.org/10.1108/07363760010335358

Chaudhary, R., & Bisai, S. (2018). Factors influencing green purchase behavior of millennials in India. *Management of Environmental Quality: An International Journal, 29*(5), 798–812. https://doi.org/10.1108/MEQ-02-2018-0023

Chen, M. F., & Tung, P. J. (2014). Developing an extended theory of planned behavior model to predict consumers' intention to visit green hotels. *International Journal of Hospitality Management, 36*, 221–230. https://doi.org/10.1016/j.ijhm.2013.09.006

Chin, W. W. (1998). The partial least squares approach to structural equation modeling. In G. A. Marcoulides (Ed.), *Modern methods for business research* (pp. 295–336). Lawrence Erlbaum Associates.

Chiu, C. M., & Wang, E. T. G. (2008). Understanding web-based learning continuance intention: The role of subjective task value. *Information & Management, 45*(3), 194–201. https://doi.org/10.1016/j.im.2008.02.003

Confederation of Indian Industry. (2019). *CII India retail summit 2019: Building towards sustainable retail.* CII–AT Kearney.

De Winter, A. F., Oldehinkel, A. J., Veenstra, R., Brunnekreef, J. A., Verhulst, F. C., & Ormel, J. (2005). Evaluation of non-response bias in mental health determinants and outcomes in a large sample of pre-adolescents. *European Journal of Epidemiology, 20*(2), 173–181. https://doi.org/10.1007/s10654-004-4948-6

Diamantopoulos, A., Schlegelmilch, B. B., Sinkovics, R. R., & Bohlen, G. M. (2003). Can socio-demographics still play a role in profiling green consumers? *Journal of Business Research, 56*(6), 465–480. https://doi.org/10.1016/S0148-2963(01)00241-7

DuPont. (2014). *DuPont green living survey: India consumer study.* http://www.dupont.co.in

Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research, 18*(1), 39–50. https://doi.org/10.1177/002224378101800104

Hair, J. F., Black, W. C., Babin, B. J., Anderson, R. E., & Tatham, R. L. (1998). *Multivariate data analysis* (5th ed.). Prentice Hall.

Hair, J. F., Anderson, R. E., Tatham, R. L., & Black, W. C. (2006). *Multivariate data analysis* (6th ed.). Prentice Hall.

Hair, J. F., Ringle, C. M., & Sarstedt, M. (2011). PLS-SEM: Indeed a silver bullet. *Journal of Marketing Theory and Practice, 19*(2), 139–152. https://doi.org/10.2753/MTP1069-6679190202

Hair, J. F., Ringle, C. M., & Sarstedt, M. (2013). Partial least squares structural equation modeling: Rigorous applications, better results and higher acceptance. *Long Range Planning, 46*(1–2), 1–12. https://doi.org/10.1016/j.lrp.2013.01.001

Hair, J. F., Sarstedt, M., Hopkins, L., & Kuppelwieser, V. G. (2014). Partial least squares structural equation modeling (PLS-SEM). *European Business Review, 26*(2), 106–121. https://doi.org/10.1108/EBR-10-2013-0128

Higueras-Castillo, E., Liébana-Cabanillas, F. J., Muñoz-Leiva, F., & García-Maroto, I. (2019). Evaluating consumer attitudes toward electromobility and the moderating effect of perceived consumer effectiveness. *Journal of Retailing and Consumer Services, 51*, 387–398. https://doi.org/10.1016/j.jretconser.2019.07.006

Jaiswal, D., & Kant, R. (2018). Green purchasing behaviour: A conceptual framework and empirical investigation of Indian consumers. *Journal of Retailing and Consumer Services, 41*, 60–69. https://doi.org/10.1016/j.jretconser.2017.11.008

Jang, J., Ko, E., Chun, E., & Lee, E. (2012). A study of a social content model for sustainable development in the fast fashion industry. *Journal of Global Fashion Marketing, 3*(2), 61–70. https://doi.org/10.1080/20932685.2012.10593108

Kim, Y., & Choi, S. M. (2005). Antecedents of green purchase behavior: An examination of collectivism, environmental concern, and perceived consumer effectiveness. *Advances in Consumer Research, 32*, 592–599.

Kock, N. (2015). Common method bias in PLS-SEM: A full collinearity assessment approach. *International Journal of e-Collaboration, 11*(4), 1–10. https://doi.org/10.4018/IJEC.2015100101

Kock, N., & Lynn, G. S. (2012). Lateral collinearity and misleading results in variance-based SEM: An illustration and recommendations. *Journal of the Association for Information Systems, 13*(7),

546–580. https://doi.org/10.17705/1jais.00302

Kollmuss, A., & Agyeman, J. (2002). Mind the gap: Why do people act environmentally and what are the barriers to pro-environmental behavior? *Environmental Education Research, 8*(3), 239–260. https://doi.org/10.1080/135046202201 45401

Kong, H. M., Witmaier, A., & Ko, E. (2021). Sustainability and social media communication: How consumers respond to marketing efforts of luxury and non-luxury fashion brands. *Journal of Business Research, 131*, 640–651. https://doi.org/10.1016/j.jbusres.2020. 08.021

Kumar, B., Manrai, A. K., & Manrai, L. A. (2017). Purchasing behaviour for environmentally sustainable products: A conceptual framework and empirical study. *Journal of Retailing and Consumer Services, 34*, 1–9. https://doi.org/10.1016/j.jretconser.201 6.09.004

Lavrakas, P. J. (2008). *Encyclopedia of survey research methods*. Sage Publications.

Lindner, J. R., Murphy, T. H., & Briers, G. E. (2001). Handling nonresponse in social science research. *Journal of Agricultural Education, 42*(4), 43–53. https://doi.org/10.5032/jae.2001.04043

Manchiraju, S., & Sadachar, A. (2014). Personal values and ethical fashion consumption. *Journal of Fashion Marketing and Management, 18*(3), 357–374. https://doi.org/10.1108/JFMM-02-2013-0013

Mostafa, M. M. (2006). Antecedents of Egyptian consumers' green purchase intentions: A hierarchical multivariate regression model. *Journal of International Consumer Marketing, 19*(2), 97–126. https://doi.org/10.1300/J046v19n02_0 6

Nunnally, J. C., & Bernstein, I. H. (1994). *Psychometric theory* (3rd ed.). McGraw-Hill.

Paul, J., Modi, A., & Patel, J. (2016). Predicting green product consumption using theory of planned behavior and reasoned action. *Journal of Retailing and Consumer Services, 29*, 123–134. https://doi.org/10.1016/j.jretconser.201 5.11.006

Puspita, H., & Chae, H. (2021). An explorative study and comparison between companies' and customers' perspectives in the sustainable fashion industry. *Journal of Global Fashion Marketing, 12*(2), 133–145. https://doi.org/10.1080/20932685.202 0.1853584

Roozen, I., Raedts, M., & Meijburg, L. (2021). Do verbal and visual nudges influence consumers' choice for sustainable fashion? *Journal of Global Fashion Marketing, 12*(4), 327–342. https://doi.org/10.1080/20932685.202 1.1930096

Ru, X., Qin, H., & Wang, S. (2019). Young people's behavioral intentions toward reducing PM2.5 in China: Extending the theory of planned behavior. *Resources, Conservation and Recycling, 141*, 99–108. https://doi.org/10.1016/j.resconrec.201 8.10.019

Saricam, C., & Okur, N. (2019). Analysing consumer behavior regarding sustainable fashion using the theory of planned behavior. In S. S. Muthu (Ed.), *Consumer behaviour and sustainable fashion consumption* (pp. 1–20). Springer. https://doi.org/10.1007/978-981-13-1265-6_1

Seligman, C., Kriss, M., Darley, J. M., Fazio, R. H., Becker, L. J., & Pryor, J. B. (1979). Predicting summer energy consumption from homeowners' attitudes. *Journal of Applied Social Psychology, 9*(1), 70–90. https://doi.org/10.1111/j.1559-1816.1979.tb00795.x

Shalender, K., & Sharma, N. (2021). Using extended theory of planned behaviour (TPB) to predict adoption intention of electric vehicles in India. *Environment, Development and Sustainability, 23*(1), 665–681. https://doi.org/10.1007/s10668-020-00602-7

Shukla, S. (2019). A study on millennial purchase intention of green products in India: Applying extended theory of planned behavior model. *Journal of Asia-Pacific Business, 20*(4), 322–350. https://doi.org/10.1080/10599231.2019.1684171

Stanley, M. (2017, March 17). *India's millennials to recast economy in own tech-savvy image.* Morgan Stanley. https://www.morganstanley.com/ideas/India-millennials-makeover-disruption-growth

Statista. (2020, November 23). *Share in world exports of the leading clothing exporters 2019, by country.* https://www.statista.com/statistics/1094515

Taylor, S., & Todd, P. (1995). Decomposition and crossover effects in the theory of planned behavior: A study of consumer adoption intentions. *International Journal of Research in Marketing, 12*(2), 137–155. https://doi.org/10.1016/0167-8116(94)00019-K

Tyagi, N. (2020). *Textile industry in India – Garment and apparel market.* Invest India. https://www.investindia.gov.in/sector/textiles-apparel

U.S. Census Bureau. (2015). *Millennials outnumber baby boomers and are far more diverse.* https://www.census.gov/newsroom/press-releases/2015/cb15-113.html

Wan, C., Shen, G. Q., & Yu, A. (2014). The moderating effect of perceived policy effectiveness on recycling intention. *Journal of Environmental Psychology, 37*, 55–60. https://doi.org/10.1016/j.jenvp.2013.11.006

Wang, P., Liu, Q., & Qi, Y. (2014). Factors influencing sustainable consumption behaviors: A survey of rural residents in China. *Journal of Cleaner Production, 63*, 152–165. https://doi.org/10.1016/j.jclepro.2013.05.007

Wang, S., Fan, J., Zhao, D., Yang, S., & Fu, Y. (2016). Predicting consumers' intention to adopt hybrid electric vehicles: Using an extended theory of planned behavior model. *Transportation, 43*(1), 123–143. https://doi.org/10.1007/s11116-014-9567-9

Yadav, R., & Pathak, G. S. (2016). Young consumers' intention towards buying green products in a developing nation: Extending the theory of planned behavior. *Journal of Cleaner Production, 135*, 732–739. https://doi.org/10.1016/j.jclepro.2016.06.120

Yadav, R., & Pathak, G. S. (2017). Determinants of consumers' green purchase behavior in a developing nation: Applying and extending the theory of planned behavior. *Ecological Economics, 134*, 114–122. https://doi.org/10.1016/j.ecolecon.2016.12.019

Youth in India. (2017). *Youth in India 2017.* Government of India. http://mospi.nic.in/sites/default/files/publication_reports/Youth_in_India-2017.pdf

Zhang, L., Fan, Y., Zhang, W., & Zhang, S. (2019). Extending the theory of planned behavior to explain the effects of cognitive factors across different kinds of green products. *Sustainability, 11*(15), Article 4222. https://doi.org/10.3390/su11154222