Policy Research Journal
ISSN (E): 3006-7030 ISSN (P) : 3006-7022 Volume 3, Issue 9, 2025

GREEN PACKAGING AND BRANDING: A CATALYST FOR SUSTAINABLE FASHION CONSUMPTION.

Sara Aslam[1], Ahsan Zubair[2], Faiqa Kiran[*3]

[1]*MS Scholar, Lyallpur Business School, Government College University Faisalabad*
[2,*3]*Assistant Professor, Lyallpur Business School, Government College University, Faisalabad, Pakistan*

DOI: https://doi.org/10.5281/zenodo.17091282

Keywords
Green Packaging and Branding(GPB), Environmental Concern(EC), Green Brand Attitude(GBA), Green Environmental Knowledge(GEK), Green Purchase Intentions (GPI).

Article History
Received: 11 June 2025
Accepted: 21 August 2025
Published: 10 September 2025

Corresponding Author: *
Faiqa Kiran

Abstract
Fashion consumers are becoming environmentally sensitive and choose companies that implement sustainable methods. Research on the impact of green branding and packaging on fashion brands is limited. This study fills the research gap by assessing the impact of environmental concerns, green packaging, and branding on fashion consumers' perceptions and purchasing intentions towards eco-friendly brands. The study will also evaluate how environmental awareness moderates green brand attitude and purchasing intention. This research followed quantitative design. Online questionnaires were administered to customers of fashion brands. Four hundred thirty-two fashion label buyers provided responses. Partial Least Squares Structural Equation Modeling (PLS-SEM) was employed for data analysis. Eco-friendly packaging and branding, together with environmental awareness, substantially affect green brand perception, which subsequently serves as a robust predictor of green purchasing intentions. Mediation analyses validate the partial mediating function of green brand attitude and the moderating influence of green brand knowledge, underscoring its pivotal role in sustainable fashion consumption.

INTRODUCTION

The fashion industry is crucial to the global economy, with a projected valuation of $1.7 trillion by the year 2023 (Ariella, 2023). In terms of revenue, the global fashion sector would be positioned as the seventh-largest economy worldwide, surpassing the GDP of numerous individual countries (Karl, 2017). The industry employs 12.6% of the worldwide workforce, 430 million people. Consequently, the fashion sector significantly contributes to the economy and jobs. The industry offers consumers a wide range of designs, trends, and brands. However, the practices employed within the sector have notable ecological footprints. The fashion industry has been acknowledged as a key factor in exacerbating water scarcity in certain regions due to its excessive use of water (Peters et al., 2021). Fashion consumes the second most water worldwide (Brydges et al., 2022).

The industry consumes 79 billion cubic meters of water annually (Baierl et al., 2022). The textile production sector is responsible for a substantial amount, specifically 20%, of the total industrial water pollution(Clark, 2022; Majumdar, Sinha, & Govindan, 2021). Furthermore, it emits 10% of global greenhouse gases (Muposhi & Chuchu, 2022). Fashion sector rayon fibre production emits and discharges pollutants (Busalim et al., 2022).

These environmental concerns extend beyond the realm of fashion. Carbon dioxide (CO2) and methane (CH4) emissions are causing significant detrimental effects on both ecosystems and the global climate. The alterations have resulted in

tangible and chemical consequences for our terrestrial, atmospheric, and marine environments. According to He & Silliman (2019), there is an increasing unpredictability associated with famines, severe thunderstorms, floods, and rising temperatures(Khan et al., 2021). The fashion sector has a major share in climate change and there is a need to take steps to mitigate its environmental and social consequences.

Greta Thunberg began global climate activism in 2018, and her successful climate engagement movement Fridays for Future as well as her lectures at forums such as the United Nations (UN) and World Economic Forum have motivated millions to confront the critical environmental catastrophe (Haugseth & Smeplass, 2023). Her activism focuses not only on the climate problem but also the sustainability and existential issues, demanding mankind to make vital decisions(Thunberg et al., 2020).

An increasing number of consumers are exhibiting a favorable inclination towards brands that advocate for environmental responsibility and ecological consumption. (Dougherty & Olsen, 2014; Lin et al., 2021; Majeed et al., 2022). As climate change fears grow, people are seeking eco-friendly products(Gong et al., 2021; Prothero et al., 2011).

The packaging of fashion brands has also contributed negatively to the environment by including and producing solid, liquid, and gaseous pollutants (Oloyede & Lignou, 2021). Nowadays consumers are aware of environmentally friendly packaging and prefer it. For a sustainable environment, numerous national and international authorities have implemented laws to regulate, minimize, and increase recycling of the packaging(Singh & Pandey, 2018).

Recently textile and clothing production has shifted to developing nations from South and South Asia like Pakistan, Bangladesh, India, Srilanka, Vietnam, Cambodia, and Indonesia(Majumdar, Sinha, Shaw, et al., 2021; Majumdar & Sinha, 2019). Thus, enabling retailers from developed nations to reduce costs while maintaining quality standards. However, these countries while offering cost advantages often overlook environmental regulations. Pakistan is the eighth most vulnerable nation to climate change by the Global Climate Index(Aiman Shah et al., 2021). Consumers in South Asian countries are looking for sustainable brands and products(Tryphena & Aram, 2023; Wang et al., 2022). Consequently, it is essential to get understanding of the viewpoints of fashion producers and consumers concerning their intentions to purchase eco-friendly or sustainable brands (Abbate et al., 2023). Our research will primarily concentrate on the consumer perspective, seeking to deepen our comprehension of the influence of eco-friendly branding and packaging, environmental concerns, and environmental knowledge on individuals' attitudes towards green brands and their intentions to engage in environmentally sustainable purchases. The primary inquiries guiding the present research are as follows.

Q1: Investigate the role of green branding & packaging and environmental concern on green brand attitude and green purchase intention.

Q2: How does environmental knowledge moderate the relationship between green brand attitude and green purchase intention?

The present study holds significant relevance for the academic community as well as practitioners in the field of brand management. This research presents a new framework that addresses the limitations of current models and expands upon the existing literature on green fashion purchase intentions. The study examines the influence of green branding and packaging as a precursor to green purchase intentions within the context of fashion brands. The study helps in understanding how branding and packaging can be used to influence green brand attitude which in turns influence their purchase intention towards sustainable consumption. This article emphasizes the necessity for marketers to rigorously examine the rising trends in sustainable fashion and comprehend consumer behavior regarding their intentions to purchase eco-friendly products.

The subsequent portion will discuss relevant academic literature and will formulate hypotheses based on the existing research.

Literature Review

Theoretical Background

The influence of green branding and packaging on the purchase intentions of environmentally conscious fashion buyers can be explained through the SOR framework proposed by Mehrabian and Russell (1974). The SOR theory is considered one of the root theories of consumer behavior and marketing because it aims to explain the underlying dynamics of consumer behavior(Cheung et al., 2021; Pan et al., 2021). Academic literature recognizes the role of external stimuli in influencing consumer behavior as well as its capacity to influence perceptions, attitudes and the generation of particular behavior. The theory has been extensively utilized in research studies related to consumer behavior in the area of fashion buying intentions (Hewei and Youngsook, 2022; Nam et al., 2021).

The SOR model is categorized into three steps: When a person is subjected to an external environmental stimulus (S), they develop an internal state (O) that causes them to respond (R) in a certain way(Su & Swanson, 2017).

The environmental stimulus (S) in our study is Green Branding and Packaging (GBP) and Economic Concern (EC).

The individual internal state(O) is referred to as Green Brand Attitude (GBA)

The cause of response (R) in our research is Green Purchase Intentions (GPI)

Attitude can be described as tripartite, i.e. cognition, affect, and behavior (Aalderen-Smeets et al., 2012; Pan et al., 2021). Understanding of these elements is essential in understanding how people form their attitudes (Pan et al., 2021). The present study employs the CAB theory of attitude to understand the relationship between green branding and green packaging, green concern, green brand attitude and green purchase intention. According to this paper, the three components of CAB theory are as follows.

The Cognition stages, which form the customer knowledge and awareness in the study include green branding and packaging as well as environmental concerns. The stage, which forms customer affection in the study, is green brand attitude. The stage of behavior, that shapes consumers' propensity to buy in this study is the green purchase intentions of consumers of fashion brands.

According to the theory, it is posited that customers' intentions in the behavior stage are directly correlated with their actual behavior. According to Hansen (2008), during the behavior stage, the utilization of green packaging and branding has a significant influence on consumers' desire to engage in green purchases.

The growing focus on environmental sustainability has driven the brands to either embrace eco-friendly practices or risk potential business losses. Green brands are actively working to develop green products to align with eco-friendly principles(Sharma, 2021). Environmental sustainability principles and practices are closely associated with the strategic development of a brand identity, which is referred to as green branding.

Green packaging, alternatively referred to as sustainable packaging or eco-friendly packaging, is exclusively comprised of natural materials and is intentionally engineered to facilitate convenient reusability, recyclability, or degradation, hence fostering environmental sustainability during its complete duration. Moreover, green packaging is not only ecologically sound but also beneficial for the welfare of individuals and the environment(Zhang & Zhao, 2012).

Hypotheses Development

Green brand and packaging can be achieved by following several steps. The first step can be using eco-friendly material for manufacturing and packaging to reduce their carbon footprint and attract the attention of eco-conscious consumers(Gao & Souza, 2022). Second, through sustainable practices during the production processes, the brands can minimize waste. It can include the minimization of energy use, the use of renewable energy resources, and

water use reduction (Alayón et al., 2017). The third green brands can emphasize their environmental qualities through obtaining certifications and employing green marketing as a tool to incorporate the idea of sustainability and environmental protection as a critical component of the green branding and packaging(Dangelico & Vocalelli, 2017). Thus, the goal of green branding can be met only by a firm commitment to sustainability. Chen et al. (2020) reported that through the application of these methods, brands can capture the target consumers with environmentally friendly attitudes and develop a positive brand image. Accordingly, green branding and packaging positively influence the attitudes of green brands among consumers.

H1: Green branding and packaging positively influence green brand attitude.

Environmental concern is the level of care and consideration of the person to the environment and the problems related to the environment (Siyal et al., 2021). Therefore, the psychological factors that determine the propensity of a person to take environmentally positive actions are often called environmental concerns (Mishal et al., 2017). The ecological issue is regarded as one of the key contributors to green consumer behavior (Widayat et al., 2021). Creating the image of caring about the environment can increase social status since such a quality is linked with being committed and trustworthy (Barclay, 2004). This desire to appear prestigious can cause consumers to purchase more environmentally friendly brands instead of a brand that is beneficial to them (Ahn et al., 2020).

Environmental awareness and concern are also indicators of customer environmental awareness. Literature demonstrates that environmentally conscious people choose ecologically friendly enterprises that reduce environmental harm. The increased level of concern among consumers over the well-being of the environment serves as a driving force behind their adoption of sustainable behaviors(Gong et al., 2022; Hamzah & Tanwir, 2021).

Environment conscious consumers want to know everything a brand is doing to protect the environment. They study review websites, analyze product labels, and assess a company's reputation to evaluate the environmental sustainability of a product. Consumers seek to understand not only the product itself but also whether the company engages in environmental conservation through its production processes, corporate practices, or philanthropic efforts (Smith & Brower, 2012). Previous research indicate that customers' attitudes are influenced by their environmental awareness. A growing eco-consciousness among customers purchasing sustainable products indicates their environmental concerns (Ahn et al., 2020). Environmentally conscious consumers dislike buying things that are destructive to the environment. Hence, businesses are positioning themselves as environmentally friendly and offering green alternatives(Azamussan & Shanmugam, 2022). Hence, based on previous research , we hypothesis as follows.

H2. Environmental concern positively influences green brand attitude.

Attitudes are an individual's lasting internal evaluations of diverse entities, including items, issues, individuals, brands, products, or behaviors (Sallam & Wahid, 2012). Attitudes are generally perceived as relatively stable and signify a lasting tendency of consumers to display consistent behavioral patterns (Chen et al., 2020). The notion of green brand attitude arises from consumers' examination and logical assessment of their environmentally conscious purchasing choices (Siyal et al., 2021). Consumers will have the chance to choose from several brand options due to the brand's attempts to convey environmentally friendly features to them (Montoro Rios et al., 2006).

Hence, the assessment of feelings and preferences (positive or negative) towards an item or concept constitutes a person's attitudinal predisposition(Çınar et al., 2020). There are two types of attitudes: explicit and implicit. Standard questionnaire surveys provide easy, self-reportable means to gauge explicit environmental attitudes (Ariaswara, 2021). However, implicit attitudes exist outside of conscious awareness and require a prompt response to stimuli, requiring an experimental research design to record their

expressed emotions(Greenwald & Lai, 2020; Hamzah & Tanwir, 2021). Positive attitudes and a positive perception of particular brands or products create consumers' attitudes, which eventually influence their intention to make an environmentally friendly purchase(Mohammed, 2021). Research on attitudes towards green brands has indicated that individuals exhibit a preference for ecologically friendly products and hold positive views regarding the environment (Baierl et al., 2022). Green product fans will think their purchase is beneficial, worthwhile, and rewarding. A person's green purchase attitude is based on their values and attitudes towards green products and services(Hamzah & Tanwir, 2021). The most significant factor influencing consumers' decision to make green purchases is their attitude toward sustainable goods(Chou et al., 2020). Many research have studied how brand perception affects consumer purchase decisions (Gong et al., 2022; Wikansari, 2023). Positive perceptions of environmentally responsible companies lead consumers to buy sustainable products.

Additionally, studies have revealed that most individuals have positive sentiments about the green brand(Schneider et al., 2021). Existing literature on green marketing has demonstrated that consumer attitudes towards environmentally conscious actions exert a notable influence on their environmental knowledge and inclination to purchase eco-friendly items (Kusuma & Handayani, 2018; Simanjuntak et al., 2023). Thus, a green buying tendency may increase clients' green purchase intentions. The green buying mindset can strongly impact purchase intention. Thus, eco-friendly beliefs may significantly impact customers' sustainable purchasing habits. Based on the above discussion, the following hypothesis is proposed.

H3. Green brand attitude positively affects green purchase intention.

Brand knowledge is the key element that connects customers to a brand, both in direct and indirect interactions. Brand knowledge involves customers remembering and recognizing essential aspects of the brand, such as its symbols, colors, and name(Esch et al., 2006; Siyal et al., 2021).

Environmental knowledge includes understanding climate change, deforestation, and marine non-biodegradable trash(Hamzah & Tanwir, 2021). Prior studies have shown an association between individuals' environmental awareness and their perspectives and attitudes regarding eco-friendly purchases (Choi & Johnson, 2019; Suki, 2013). Nevertheless, customer skepticism towards environmentally friendly products acts as a barrier that impedes their willingness to engage in such purchases. The mistrust that emerges is a result of customer concerns over the possibility of overstatement and deceptive assertions encountered on product labels or in marketing (Goh & Balaji, 2016).

Green brands try to increase brand awareness and consumer involvement, by increasing consumer knowledge. A green brand can educate consumers about the environment benefits of using eco-friendly products(Liu et al., 2020; Montoro Rios et al., 2006). Thus, helps in understanding the brand's impact on the environment. Effective marketing communications can create positive impression on customers and support a green brand positioning strategy(Aulina & Yuliati, 2017). Hence, green brand knowledge is customer's memory connected with environmental preservation and support. Additionally, it highlights the brand's eco-friendliness and climate change impact(Davari & Strutton, 2014). Consumers are often seen as needing more awareness on environment due to insufficient information pertaining to green brands and climate change(Higueras-Castillo et al., 2019; Kardooni et al., 2016). Lack of understanding makes it hard for consumers to make informed green product purchases by limiting brand adoption (Larson et al., 2014). Choi & Johnson (2019) discovered that environmentally aware consumers usually purchase green products. Hence, that environmental knowledge greatly affects green purchase intention. Levine & Strube (2012) discovered that there is no correlation between environmental knowledge in predicting pro-

environmental behavior. Consequently, the environmental knowledge of consumers may act as moderator between brand attitude and the intention to make environmentally friendly purchases.

Ye et al. (2022) performed research to look at how brand attitude and green purchasing intent are related and the moderating impact that green environmental knowledge has on that relationship. They discovered that the connection was favorably mediated by green environmental knowledge, showing that people with greater environmental knowledge are more likely to transform favorable brand beliefs into green purchase intention, (Lin et al., 2021) investigated how brand attitude and green purchasing intention are affected by green environmental knowledge as a moderator. Hence, a greater level of knowledge may be positively correlated with an increased impact of favorable brand attitudes on green purchase behavior. Hence, brand attitude and intention to engage in green buying may be greatly enhanced by a higher level of green environmental knowledge, leading to following hypothesis.

H4: The environmental knowledge moderates the relationship between green brand attitude on green purchase intentions.

The impact of environmental challenges and concerns is felt on a global scale, affecting both enterprises and individuals. As a result of increased consumer consciousness regarding environmental concerns, purchase patterns have transformed to align with the objective of environmental preservation(Minton & Rose, 1997).

Because of consumer concern for the environment, their purchase patterns have gradually changed to assist environmental preservation (Arbuthnot, 1977). Shopping habits have changed to reflect environmental concerns (Cleveland & Bartikowski, 2018). One of the essential habits is offering value to the environment(Akhtar et al., 2021). According to recent studies, customer loyalty and brand perception are mediated by consumer attitude. Positive brand perception improves consumer perceptions, which increases brand loyalty(Hayat et al., 2020). When consumers think highly of a product's quality, it affects their perception of the product and ultimately influences their decision to buy (Liu et al., 2020). Environmental concern is linked to green purchasing intentions (Choi & Johnson, 2019; Fielding & Head, 2012). This highlights the importance of attitudes in effectively translating environmental concern into tangible purchasing actions.

On the other side, there is the argument that environmentally conscious consumers do not necessarily behave in a good way for the environment. An empirical study indicated that a small percentage of consumers have shown a propensity for recycling, expressed concerns about pollution, and are prepared to pay extra for environmentally friendly products (Morgan & Birtwistle, 2009). A study based on empirical data revealed that a limited proportion of consumers have demonstrated an inclination towards recycling products, displayed concerns regarding pollution, and exhibited a willingness to incur additional costs for the purchase of environmentally friendly products(Morgan & Birtwistle, 2009). There is a need to investigate the mediating role of green brand attitude between green packaging and branding and green purchase intentions(Jabeen et al., 2023). Hence, we hypothesis the following.

H5: Green brand attitude significantly mediates the relationship between green packaging and branding and green purchase intention.

H6: Green brand attitude mediates the effect between environmental concern and green purchase intention.

Research methodology

Scale items were adapted from existing studies, to ensure the reliability and dependability of the constructs measuring independent and dependent variables in the research. The scale item of green packaging and branding comprises of five items and was adapted from the study of Shabbir et al. (2020). Similarly, the three-item scale of environmental concern was adapted from

the study of Hamzah et al. (2022). Moreover, the five-item scale of green brand attitude was adapted from the study of Mehraj & Qureshi (2022). Lastly, the three-item scale for green brand knowledge and green purchase intention was adapted from the prestigious studies of Asif et al.(2023) and Chang (2012) respectively. Further, all the scale items are measured with 7-point Likert scale ranging from 1-strongly disagree to 7-strongly agree. Further, the study includes age, gender, education, and income as the control variables. The relationship of these control variables with the green purchase intention was found insignificant. In the end, before the finalization of a questionnaire for the survey, the authors shared the proposed questionnaire with the twenty industrial and research experts. The pretest participants were requested to evaluate and validate the questionnaire. Some minor changes and item orders were restructured as per the recommendations of the pretest.

Table 1. Demographics of the sample (N=432)

Control Variable	Category	Number	Percentage
Gender	Male	220	51%
	Female	212	39%
Education	Secondary level schooling	86	20%
	Higher Secondary level schooling	86	20%
	Graduation	172	40%
	Masters and above	86	20%
Age	18-22	69	15%
	23-27	207	45%
	28-32	69	15%
	33-37	52	12%
	38-42	29	7%
	43 and onward	27	6%
Income	50000 a month	154	35%
	75000 a month	86	30%
	100000 a month	69	15%
	125000 and above	86	20%

Considering the empirical nature of the study, the authors followed the random sampling technique to collect the data from the respondents. The study respondents were consumers of fashion brands and considering this perspective, respondents were chosen randomly from outside of the prominent shopping malls of the provincial and federal capitals of Pakistan (Lahore, Islamabad, Faisalabad and any other city in Pakistan). The respondents were engaged in filling out the printed questionnaire and as a token of appreciation, a printed ball pen of the research group was gifted. Finally, a total of 485 questionnaires were distributed to the respondents, authors found 432 complete questionnaires. With a response rate of 90 percent approximately, these 432 responses were considered for further analysis. This large sample size is deemed good for the SEM-based analysis. The demographic analysis shows that 51% of respondents were male and 49% were female respondents. Table 1, illustrates the demographic profile of the study by the control variables.

SmartPLS software 3.8 was engaged for the SmartPLS-based SEM analysis of 432 respondents. SEM/structural equation modeling is a two-step approach that estimates the measurement and structural models separately.

Moreover, the study measures non-parametric bootstrapping with 1000 replications (Hair et al., 2014).

Table. 2. Present the scale items and assessment measurement model

Constructs	Items	FL	VIF	α	CR	AVE	R^2/Q^2
Green Brand Packaging (GPB)	GPB1	0.763	1.385	0.702	0.800	0.510	
	GPB2	0.611	1.322				
	GPB3	0.669	1.318				
	GPB4	0.649	1.362				
	GPB5	0.623	1.176				
Environmental Concern (EC)	EC1	0.779	1.405	0.720	0.804	0.508	
	EC2	0.723	1.300				
	EC3	0.716	1.298				
	EC4	0.626	1.242				
Green Brand Attitude (GBA)	GBA1	0.670	1.000	0.846	0.889	0.618	0.527/0.317
	GBA2	0.837	1.506				
	GBA3	0.779	2.200				
	GBA4	0.810	1.785				
	GBA5	0.823	1.867				
Green Brand Knowledge (GEK)	GEK1	0.717	1.860	0.802	0.808	0.584	
	GEK2	0.764	1.401				
	GEK3	0.810	1.377				
Green Purchase Intention (GPI)	GPI1	0.770	1.448	0.758	0.860	0.672	0.797/0.524
	GPI2	0.854	1.663				
	GPI3	0.834	1.533				

The study uses Harman's single-factor technique to investigate the existence of common method bias. The results show that one single factor value is 12.0234% which is far below the threshold variance value of 51%. So, the current study has no issue of common method bias (Podsakoff et al., 2003). The results of measurement include reliability and validity, Cronbach's alpha, factor loading, and composite reliability. The results show that all the factor loading values are above the threshold value of 0.60 (Tabassum et al., 2020). Similarly, the values of Cronbach's alpha and composite reliability values are greater than the minimum value of 0.70 (Tabassum et al., 2020). These results show that the study fulfills the reliability criteria. Further, the average variance extracted (AVE) values are found above the minimum criterion of 0.50 (Sarstedt et al., 2019). This shows reliability criteria are also met.

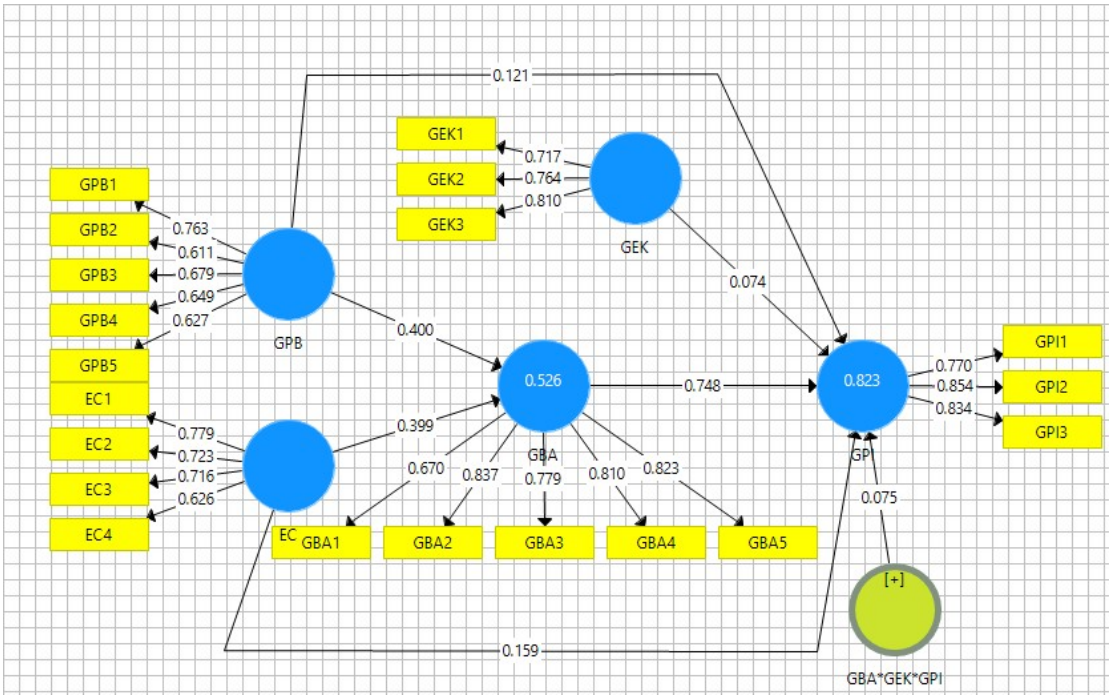


Figure 1. Presents the graphical outcome of the measurement model and path relationships.

Results:

Assessment of Measurement Model

The estimation of discriminant validity between the constructs is of pivotal importance while assessing the measurement model. The social scientist often opts for two techniques to measure the discriminant validity. First is the Fornell-Larcker and HTMT method. This technique ensures that the diagonals values of the HTMT table are the AVE square roots and these are in correlation. The HTMT outcome should be less than 0.85 and all values should be less than this standard (Hair et al., 2016, 2019). HTMT is the best criterion to measure the discriminant validity. Table 2 presents the variance influence factor (VIF) outcome. VIF measures the multicollinearity by estimating the mean values of independent variables that influence the other variables. The values of VIF should range between 1 to 3.3 and all the VIF values of this study are within the given limits.

Table 3. HTMT outcome of the study.

EC	GBA	GEK	GPB	GPI
0.713				
0.660	0.786			
-0.400	-0.324	0.764		
0.649	0.659	-0.293	0.668	
0.682	0.760	-0.259	0.682	0.820

Structural Model:

Path Analysis

The study has six testable statements. Three hypotheses will check the direct relationships of the variables. One hypothesis belongs to the moderation relationship and the rest of the two will discuss the existence of the mediating effect. The beta value represents the positive or negative relationship between the variables. T-value cut-off value is 1.96 or higher representing the existence of the relationship. Whereas, a P-value less than 0.01 means a strong relationship exists between the construct.

In the current study, H1 represents the impact of green brand packaging's ability to generate a green brand attitude. The results show GPB makes a positive contribution to the GBA with β=0.400, and p-value=0.000. Hence H1 is approved. H2 presents the direct relationship of EC with GBA and results show that β=0.399, and p-value=0.000. So, H2 is also approved. Further H3 discusses the existence of the relationship between GBA and GPI.

Table 4. Path Analysis

Hypothesis	Direct Path	Std. Beta	Std. Error	T-Value	P-Value	Result
H1	GPB → GBA	0.400	0.047	08.482	0.000	Approved
H2	EC → GBA	0.399	0.050	08.098	0.000	Approved
H3	GBA → GPI	0.748	0.013	27.241	0.000	Approved
H4	GBA*GEK*GPI	0.075	0.022	02.967	0.003	Approved
Mediation Analysis						
Mediation 1						
Direct Effect	a: GPB→ GBA	0.400	0.045	8.195	0.000	Approved
	b: GBA → GPI	0.748	0.013	27.241	0.000	Approved
	C': GPB→GPI	0.121	0.028	7.454	0.000	Approved
Indirect Effect						
H5	**GPB -> GBA -> GPI**	0.4202	0.034	8.782	0.000	Approved
	a: EC→ GBA	0.399	0.048	8.195	0.000	Approved
	b: GBA → GPI	0.748	0.013	27.241	0.000	Approved
	C': EC→GPI	0.159	0.032	4.715	0.000	Approved
Indirect Effect						
H6	**EC-> GBA -> GPI**	0.457	0.037	7.973	0.000	Approved

Moderation Effect

Further, this study evaluates the moderating role of green brand knowledge. GEK moderates the relationship between the green brand attitude and green brand purchase intention. The results show that GEK strengthens the existing positive relationship between the GBA and GPI with β=0.075, and p-value=0.003. Hence, H4 extends the moderating role of GEK between the GBA and GPI. H4 is also approved. Table 4 presents the moderating results and Figure 3 presents the graphical outcome of moderation.

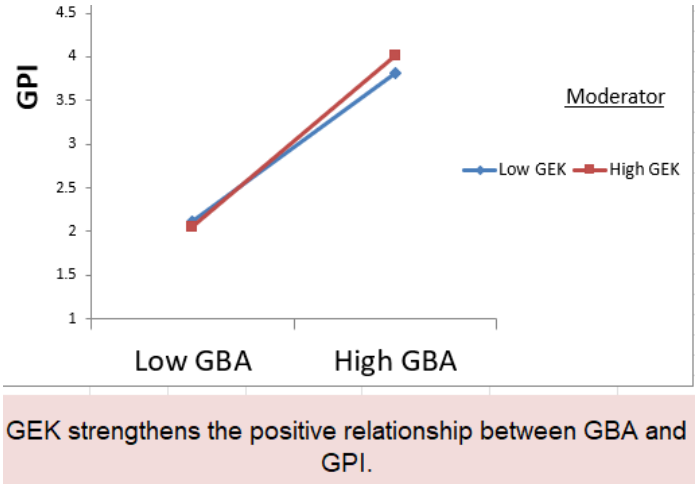


Figure 3. Presents the moderation effect.

Mediation Effect

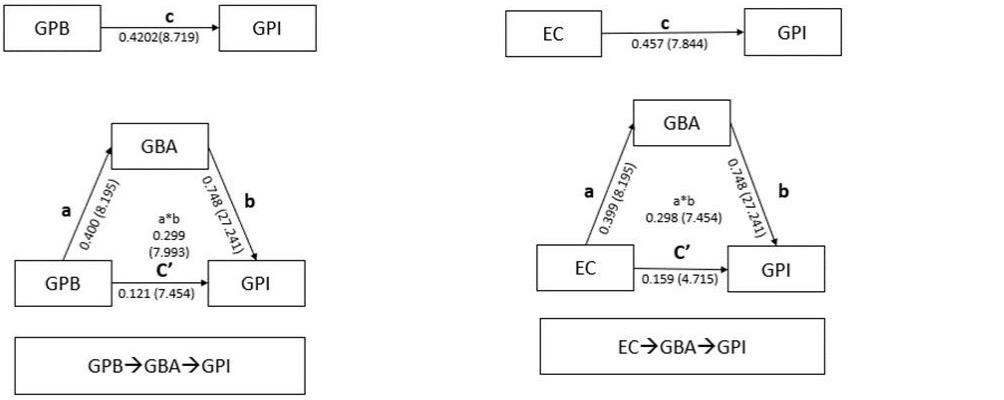
To measure the mediation of GBA in the context of the GPB, EC, and GPI the bootstrapping technique was used to estimate the indirect effect. Table 4. Present the results. Further, figure 3, shows that GPB and EC positively contribute to the GBA in a significant manner.

Further, the GPB and EC have both direct and indirect positively significant outcomes. The direct effect a:GPB → GBA(β=0.400 and p-value=0.000) b: b: GBA → GPI (β=0.748 and p-value=0.000) and c': GPB→GPI(β=0.121 and p-value=0.000) are significant and positive. The value of total indirect effect is **GPB -> GBA -> GPI** (β=0.4202 and p-value=0.000) and is significant and positive. Thus, H5 is supported. The direct effect a:EC→ GBA(β=0.399 and p-value=0.000) b: b: GBA → GPI (β=0.748 and p-value=0.000) and c': EC→GPI(β=0.159 and p-value=0.000) are significant and positive. The value of total indirect effect is **EC -> GBA -> GPI** (β=0.457 and p-value=0.000) and is significant and positive. Thus, H6 is supported.

In the context of the indirect effect of GPB and EC, the variance account known as the VAF formula was used (Hair et al., 2016).

VAF = indirect effect/total effect.

Further, total effect = indirect effect + direct effect. Moreover, if the respective result of VAF is 80% that means full mediation, 20% VAF represents partial mediation and less than 20% means no mediation (Hair et al., 2016). The results of this study are above 20% and less than 80% means partial mediation exists between the paths such as GPB→GBA→GPI (42%) and EC→GBA→GPI (46%).



Notes: Calculation for this figure are enacted from the path analysis and the SmartPLS figure. The C path presents the total effect of GPB and GBA on GPI, EC and GBA on GPI. While C' represents the direct effect of GPB and EC on GPI in the presence of GBA. It infers that, when GBA is involved as the mediator in the model, it increases and decreases the total effect of a particular independent variable on the dependent variable.

Total Effect= C=C'+(a*b) =0.121+(0.400*0.748) =0.4202

Figure 3. Mediation Analysis.

Quality Criterions

Table 2 shows presents the two quality criteria. Namely, R^2 and Q^2 are used to measure the quality of structure. These criteria show the variability and existence of a close relationship between the model construct. R^2 values of GBA=0.526 and GPI 0.823 are higher than the cut-off value of 0.2. Similarly, the Q^2 value above 0 meets the minimum criteria. The results show that Q^2 values of GBA=0.316 and GPI=543 are above the cut-off value. The results show that the structure is robust. Figure 2 presents the R^2 results and Figure 4 shows the Q^2 results.

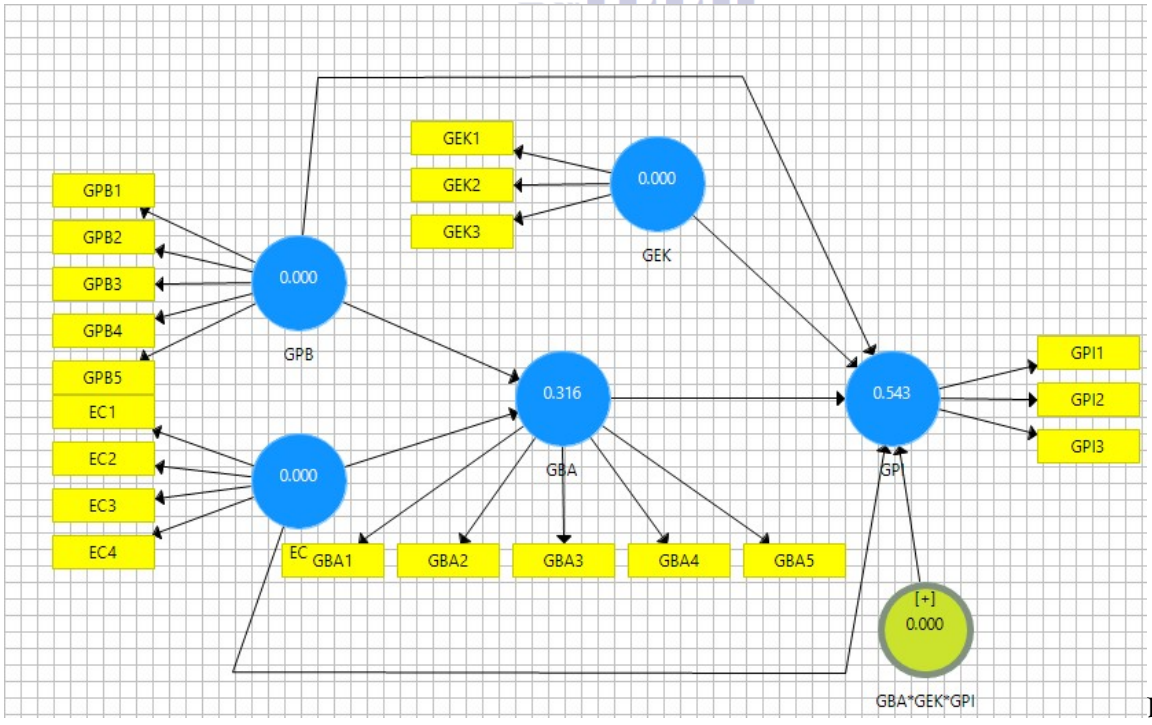


Figure 4. Presents the Q^2 results.

Discussion

This study expands upon the existing theories of the CAB and SOR framework by investigating the influence of green packaging & branding, and environmental concern on customers' intentions to engage in green purchasing within the fashion industry. The results of H1 indicate that green packaging and branding have a statistically significant positive impact on green brand attitude (β=0.400, t = 8.482, p < 0.000). The findings reveal the importance of green or sustainable packaging and branding strategies in influencing consumers' attitudes towards sustainable fashion choices.

The results of H2 indicate a significant positive relationship between environmental concern and green brand attitude (β=0.399, t = 8.098, p < 0.000). The results align with prior studies examining various products or brands, which have demonstrated a positive association between environmental consciousness and favorable attitudes towards green brands (Chen et al., 2020). The findings confirm that promoting environmental concerns among fashion brand consumers can shape their attitude positively toward eco-friendly brands.

Hypothesis H3 shows a strong positive relationship between green brand attitude and green purchase intentions, (β=0.748, t =27.241 , p < 0.000). Therefore, the results indicate that fostering a favorable outlook on eco-friendly brands can serve as an efficient approach to stimulate environmentally conscious buying habits in consumers of fashion brands.

H4 shows that environmental knowledge acts as a moderator between green brand attitude and green purchase intention, (β=0.075, t = 2.967, p < 0.000). These findings align with the earlier study conducted by Siyal et al. (2021), which demonstrated that consumers with environmental awareness are more inclined to hold a favorable attitude and exhibit purchase intentions for eco-friendly and sustainable products or brands.

The results of the mediation analysis prove H5 stating that green brand attitude acts as a mediator between green branding and packaging and green purchase intentions. Thus, fashion consumers who have a positive perception regarding green brand practices and green packaging are more likely to have a stronger intention towards purchasing green fashion brands. Consumers having less favorable attitudes towards green initiatives of fashion brands may not be influenced by green branding and packaging. Hence, consumer perceptions and attitudes toward a green brand play a vital role in consumer decisions regarding purchases.

The H6 proves that green brand attitude acts as a mediator between environmental concern and green purchase intentions. As a result, individuals in the fashion industry who prioritize environmental concerns are more inclined to maintain a positive perception of eco-friendly brands, subsequently enhancing their probability of buying sustainable fashion items.

The study's findings indicate that by developing green brand attitudes, brand managers have the potential to enhance customers' intentions to engage in green purchases within the fashion brand context. This can be achieved by emphasizing the environmental advantages associated with their green fashion products and packaging, as well as by demonstrating brand's dedication to sustainability and addressing climate change.

Theoretical Implication:

The current research has some vital theoretical implications for academia. First, the study is based on a solid framework to analyze the green purchase intentions of fashion customers and significantly advances the theory. Additionally, this study has incorporated both SOR and CAB theories. This research extends the SOR and CAB theories to understand the underlying mechanism behind consumers' purchase intentions of environmentally friendly fashion brands. The study finds two cognitive factors green branding and packaging and environmental concern act as a stimulus toward green purchase intentions.

Secondly, the study presents green brand attitude as an affective factor as a mediator that can influence green purchase intentions in the case of fashion brands. Consumers that possess an

increased degree of environmental consciousness tend to display positive attitudes towards green branding and packaging. Therefore, those who possess a favorable attitude towards environmentally conscious brands are more inclined to exhibit a higher level of motivation towards making green purchases.

Environmental knowledge moderates the relationship between green business views and eco-friendly purchase intentions. Environmentally conscious consumers evaluate their purchases and prefer eco-friendly products, even if they cost more or are less convenient.

Fourth, the study makes a significant contribution by considering the South Asian perspective. Specifically, the Pakistani fashion consumer, as they live in one of the seventh most affected areas in terms of climate change(Shahid, 2021). This findings may inspire future investigators seeking to understand the consumption behavior of persons living in areas significantly affected by climate change.

Practical Implication:

The research findings have significant consequences for marketing managers and brand owners. First, fashion brands must focus on environmental packaging and green branding strategies. Consumers exhibit an understanding of the significance associated with maintaining an environment that is both clean and safe. The use of sustainable practices in manufacturing and delivering the product can enhance the positive perception of brands among environmentally conscious consumers. A considerable number of consumers exhibit an increased degree of concern regarding the environmental implications associated with the items they utilize. In light of this, fashion firms possess the potential to leverage this opportunity by engaging in the development of sustainable products and packaging.

Secondly, fashion brands can show their commitment to sustainability by implementing eco-friendly production processes, reducing textile waste, and promoting ethical sourcing and supply chain practices. Fashion brands can introduce packaging that is recyclable, biodegradable, or compostable. In this way, fashion brands can foster a green brand attitude among consumers. Fashion brands must prioritize green marketing and align their branding and packaging strategies with consumer preferences to reduce environmental pollution.

Third, green fashion brand managers must understand the role of environmental knowledge as a moderator between green brand attitude and green purchase intentions. Fashion brands must focus on increasing environmental responsibility among consumers through marketing communication and must try to build strong brand associations with green brands. This will help in increasing green purchase intentions.

The study offers important guidance for firms involved in Corporate Social Responsibility (CSR) programs, indicating that fashion brands should collaborate with different organizations to raise environmental awareness and promote sustainable fashion. Brands may allocate resources to research and development to create novel methods for reducing product environmental impact. Fashion brands may help governments achieve sustainable development by creating and implementing sustainable industry policies. Policymakers may promote sustainable materials, sustainable fashion, and fashion sector environmental impact reduction.

Limitations and Future Directions

This research represents an early endeavor towards understanding the influence of green branding and packaging within the fashion sector on developing green purchasing intentions. However, there are few constraints and limitations in this research. First, in the future quantitative and experimental design can explore what kind of green branding and packaging are required by fashion consumers. How green brands can balance environmental issues and profitability?

Second, the current study explore green branding and packaging in fashion industry future research can extend the investigation in other industries like FMCGs, personal care, hospitality, etc. The studies can be done on different categories like

luxury and non-luxury, national or private label brands.

The study utilized an online survey as a means of collecting data from individuals who are users of fashion brands. Future researchers can acquire data from more diverse participants. To ensure more generalizable, the data collection could be carried out in different countries of South Asia with various demographic groups.

The study employed cross sectional design. To understand the in-depth causal inferences longitudinal designs must be used. Finally, forthcoming research can use different theoretical paradigms like value belief norm theory and consumption values theory to understand different antecedents of green purchase intentions.

REFERENCES

Aalderen-Smeets, S. I., Walma van der Molen, J. H., & Asma, L. J. F. (2012). Primary teachers' attitudes toward science: A new theoretical framework. *Science Education*, *96*(1), 158–182. https://doi.org/10.1002/sce.20467

Abbate, S., Centobelli, P., Cerchione, R., Nadeem, S. P., & Riccio, E. (2023). Sustainability trends and gaps in the textile, apparel and fashion industries. *Environment, Development and Sustainability*, 1–28.

Ahn, I., Kim, S. H., & Kim, M. (2020). The relative importance of values, social norms, and enjoyment-based motivation in explaining pro-environmental product purchasing behavior in apparel domain. *Sustainability*, *12*(17), 6797.

Aiman Shah, Rabia Naveed, Iqra Khalid, & Aisha Khan. (2021). A review on consequences of climate change in Pakistan. *International Journal of Engineering Research Updates*, *1*(1), 026–042. https://doi.org/10.53430/ijeru.2021.1.1.0054

Akhtar, R., Sultana, S., Masud, M. M., Jafrin, N., & Al-Mamun, A. (2021). Consumers' environmental ethics, willingness, and green consumerism between lower and higher income groups. *Resources, Conservation and Recycling*, *168*, 105274.

Alayón, C., Säfsten, K., & Johansson, G. (2017). Conceptual sustainable production principles in practice: Do they reflect what companies do? *Journal of Cleaner Production*, *141*, 693–701.

Arbuthnot, J. (1977). The roles of attitudinal and personality variables in the prediction of environmental behavior and knowledge. *Environment and Behavior*, *9*(2), 217–232.

Ariella, S. (2023). *Dazzling fashion industry statistics [2023]: How much is the fashion industry worth*. Zippia. 28 Dazzling Fashion Industry Statistics [2023]: How Much Is The Fashion Industry Worth Zippia.com. Jun. 15, 2023, https://www.zippia.com/advice/fashion-industry-statistics/

Aulina, L., & Yuliati, E. (2017). *The effects of green brand positioning, green brand knowledge, and attitude towards green brand on green products purchase intention*. 548–557.

Azamussan, S., & Shanmugam, M. (2022). An empirical examination of the effects of demographic groups on socially responsible consumption behaviour. *Social Responsibility Journal*, *18*(5), 951–967.

Baierl, T.-M., Kaiser, F. G., & Bogner, F. X. (2022). The supportive role of environmental attitude for learning about environmental issues. *Journal of Environmental Psychology*, *81*, 101799.

Barclay, P. (2004). Trustworthiness and competitive altruism can also solve the tragedy of the commons. *Evolution and Human Behavior*, *25*(4), 209–220.

Brydges, T., Henninger, C. E., & Hanlon, M. (2022). Selling sustainability: Investigating how Swedish fashion brands communicate sustainability to consumers. *Sustainability: Science, Practice and Policy*, *18*(1), 357–370.

Busalim, A., Fox, G., & Lynn, T. (2022). Consumer behavior in sustainable fashion: A systematic literature review and future research agenda. *International Journal of Consumer Studies*, *46*(5), 1804–1828.

Chen, Y.-S., Chang, T.-W., Li, H.-X., & Chen, Y.-R. (2020). The Influence of Green Brand Affect on Green Purchase Intentions: The Mediation Effects of Green Brand Associations and Green Brand Attitude. *International Journal of Environmental Research and Public Health*, *17*(11), 4089. https://doi.org/10.3390/ijerph17114089

Cheung, M. L., Ting, H., Cheah, J.-H., & Sharipudin, M.-N. S. (2021). Examining the role of social media-based destination brand community in evoking tourists' emotions and intention to co-create and visit. *Journal of Product & Brand Management*, *30*(1), 28–43.

Chou, S.-F., Horng, J.-S., Liu, C.-H. S., & Lin, J.-Y. (2020). Identifying the critical factors of customer behavior: An integration perspective of marketing strategy and components of attitudes. *Journal of Retailing and Consumer Services*, *55*, 102113.

Çınar, Z. M., Abdussalam Nuhu, A., Zeeshan, Q., Korhan, O., Asmael, M., & Safaei, B. (2020). Machine learning in predictive maintenance towards sustainable smart manufacturing in industry 4.0. *Sustainability*, *12*(19), 8211.

Clark, J. H. (2022). Using green chemistry to progress a circular fashion industry. *Current Opinion in Green and Sustainable Chemistry*, 100685.

Cleveland, M., & Bartikowski, B. (2018). Cultural and identity antecedents of market mavenism: Comparing Chinese at home and abroad. *Journal of Business Research*, *82*, 354–363.

Dangelico, R. M., & Vocalelli, D. (2017). Green Marketing: An analysis of definitions, strategy steps, and tools through a systematic review of the literature. *Journal of Cleaner Production*, *165*, 1263–1279.

Davari, A., & Strutton, D. (2014). Marketing mix strategies for closing the gap between green consumers' pro-environmental beliefs and behaviors. *Journal of Strategic Marketing*, *22*(7), 563–586.

Dougherty, M. L., & Olsen, T. D. (2014). Taking terrain literally: Grounding local adaptation to corporate social responsibility in the extractive industries. *Journal of Business Ethics*, *119*, 423–434.

Esch, F., Langner, T., Schmitt, B. H., & Geus, P. (2006). Are brands forever? How brand knowledge and relationships affect current and future purchases. *Journal of Product & Brand Management*, *15*(2), 98–105.

Fielding, K. S., & Head, B. W. (2012). Determinants of young Australians' environmental actions: The role of responsibility attributions, locus of control, knowledge and attitudes. *Environmental Education Research*, *18*(2), 171–186.

Gao, F., & Souza, G. C. (2022). Carbon offsetting with eco-conscious consumers. *Management Science*, *68*(11), 7879–7897.

Goh, S. K., & Balaji, M. S. (2016). Linking green skepticism to green purchase behavior. *Journal of Cleaner Production*, *131*, 629–638.

Gong, S., Sheng, G., Peverelli, P., & Dai, J. (2021). Green branding effects on consumer response: Examining a brand stereotype-based mechanism. *Journal of Product & Brand Management*, *30*(7), 1033–1046.

Gong, S., Wang, L., Peverelli, P., & Suo, D. (2022). When is sustainability an asset? The interaction effects between the green attributes and product category. *Journal of Product & Brand Management*, *31*(6), 971–983.

Greenwald, A. G., & Lai, C. K. (2020). Implicit social cognition. *Annual Review of Psychology*, *71*, 419–445.

Hamzah, M. I., & Tanwir, N. S. (2021). Do pro-environmental factors lead to purchase intention of hybrid vehicles? The moderating effects of environmental knowledge. *Journal of Cleaner Production*, *279*, 123643.

Haugseth, J. F., & Smeplass, E. (2023). The Greta Thunberg effect: A study of Norwegian Youth's Reflexivity on climate change. *Sociology*, *57*(4), 921–939.

Hayat, N., Hussain, A., & Lohano, H. D. (2020). Eco-labeling and sustainability: A case of textile industry in Pakistan. *Journal of Cleaner Production*, *252*, 119807.

He, Q., & Silliman, B. R. (2019). Climate change, human impacts, and coastal ecosystems in the Anthropocene. *Current Biology*, *29*(19), R1021–R1035.

Hewei, T., & Youngsook, L. (2022). Factors affecting continuous purchase intention of fashion products on social E-commerce: SOR model and the mediating effect. *Entertainment Computing*, *41*, 100474.

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.

Jabeen, R., Khan, K. U., Zain, F., & Atlas, F. (2023). Buy green only: Interplay between green marketing, corporate social responsibility and green purchase intention; the mediating role of green brand image. *Business Strategy & Development*, *6*(3), 503–518.

Kardooni, R., Yusoff, S. B., & Kari, F. B. (2016). Renewable energy technology acceptance in Peninsular Malaysia. *Energy Policy*, *88*, 1–10.

Karl, C. (2017). *The State of Fashion 2017*. McKinsey Global Institute.

Khan, I., Lei, H., Shah, A. A., Khan, I., & Muhammad, I. (2021). Climate change impact assessment, flood management, and mitigation strategies in Pakistan for sustainable future. *Environmental Science and Pollution Research*, *28*, 29720–29731.

Kusuma, P. N. P. D., & Handayani, R. B. (2018). The effect of environmental knowledge, green advertising and environmental attitude toward green purchase intention. *Russian Journal of Agricultural and Socio-Economic Sciences*, *78*(6), 95–105.

Levine, D. S., & Strube, M. J. (2012). Environmental attitudes, knowledge, intentions and behaviors among college students. *The Journal of Social Psychology*, *152*(3), 308–326.

Lin, J., Zhou, Z., & Leckie, C. (2021). Green brand communication, brand prominence and self–brand connection. *Journal of Product & Brand Management*, *30*(8), 1148–1161.

Liu, M. T., Liu, Y., & Mo, Z. (2020). Moral norm is the key: An extension of the theory of planned behaviour (TPB) on Chinese consumers' green purchase intention. *Asia Pacific Journal of Marketing and Logistics*, *32*(8), 1823–1841.

Majeed, M., Azumah, S. B., & Asare, C. (2022). Drivers of green brand equity and green purchase intention in emerging markets. *Green Marketing in Emerging Economies: A Communications Perspective*, 143–165.

Majumdar, A., & Sinha, S. K. (2019). Analyzing the barriers of green textile supply chain management in Southeast Asia using interpretive structural modeling. *Sustainable Production and Consumption*, *17*, 176–187.

Majumdar, A., Sinha, S. K., & Govindan, K. (2021). Prioritising risk mitigation strategies for environmentally sustainable clothing supply chains: Insights from selected organisational theories. *Sustainable Production and Consumption*, *28*, 543–555.

Majumdar, A., Sinha, S. K., Shaw, M., & Mathiyazhagan, K. (2021). Analysing the vulnerability of green clothing supply chains in South and Southeast Asia using fuzzy analytic hierarchy process. *International Journal of Production Research*, *59*(3), 752–771.

Mehrabian, A., & Russell, J. A. (1974). *An approach to environmental psychology.* the MIT Press.

Minton, A. P., & Rose, R. L. (1997). The Effects of Environmental Concern on Environmentally Friendly Consumer Behavior: An Exploratory Study. *Journal of Business Research*, *40*(1), 37–48. https://doi.org/10.1016/S0148-2963(96)00209-3

Mishal, A., Dubey, R., Gupta, O. K., & Luo, Z. (2017). Dynamics of environmental consciousness and green purchase behaviour: An empirical study. *International Journal of Climate Change Strategies and Management*, *9*(5), 682–706.

Montoro Rios, F. J., Luque Martinez, T., Fuentes Moreno, F., & Cañadas Soriano, P. (2006). Improving attitudes toward brands with environmental associations: An experimental approach. *Journal of Consumer Marketing*, *23*(1), 26–33.

Morgan, L. R., & Birtwistle, G. (2009). An investigation of young fashion consumers' disposal habits. *International Journal of Consumer Studies*, *33*(2), 190–198.

Muposhi, A., & Chuchu, T. (2022). Influencing millennials to embrace sustainable fashion in an emerging market: A modified brand avoidance model perspective. *Journal of Fashion Marketing and Management: An International Journal*, *ahead-of-print*(ahead-of-print), 1–21. https://doi.org/10.1108/JFMM-07-2021-0169

Nam, C., Cho, K., & Kim, Y. D. (2021). Cross-cultural examination of apparel online purchase intention: SOR paradigm. *Journal of Global Fashion Marketing*, *12*(1), 62–76.

Oloyede, O. O., & Lignou, S. (2021). Sustainable paper-based packaging: A consumer's perspective. *Foods*, *10*(5), 1035.

Pan, C., Lei, Y., Wu, J., & Wang, Y. (2021). The influence of green packaging on consumers' green purchase intention in the context of online-to-offline commerce. *Journal of Systems and Information Technology*, *23*(2), 133–153.

Prothero, A., Dobscha, S., Freund, J., Kilbourne, W. E., Luchs, M. G., Ozanne, L. K., & Thøgersen, J. (2011). Sustainable consumption: Opportunities for consumer research and public policy. *Journal of Public Policy & Marketing*, *30*(1), 31–38.

Sallam, M. A. A., & Wahid, N. A. (2012). Endorser credibility effects on Yemeni male consumer's attitudes towards advertising, brand attitude and purchase intention: The mediating role of attitude toward brand. *International Business Research*, *5*(4), 55.

Schneider, C. R., Zaval, L., & Markowitz, E. M. (2021). Positive emotions and climate change. *Current Opinion in Behavioral Sciences*, *42*, 114–120.

Shahid, F. (2021). Climate Change: Impacts on Pakistan and Proposed Solutions. *Pakistan Social Sciences Review*, *5*(II), 223–235. https://doi.org/10.35484/pssr.2021(5-II)18

Sharma, A. P. (2021). Consumers' purchase behaviour and green marketing: A synthesis, review and agenda. *International Journal of Consumer Studies*, *45*(6), 1217–1238. https://doi.org/10.1111/ijcs.12722

Simanjuntak, M., Nafila, N. L., Yuliati, L. N., Johan, I. R., Najib, M., & Sabri, M. F. (2023). Environmental Care Attitudes and Intention to Purchase Green Products: Impact of Environmental Knowledge, Word of Mouth, and Green Marketing. *Sustainability*, *15*(6), 5445.

Singh, G., & Pandey, N. (2018). The determinants of green packaging that influence buyers' willingness to pay a price premium. *Australasian Marketing Journal*, *26*(3), 221–230.

Siyal, S., Ahmed, M. J., Ahmad, R., Khan, B. S., & Xin, C. (2021). Factors Influencing Green Purchase Intention: Moderating Role of Green Brand Knowledge. *International Journal of Environmental Research and Public Health*, *18*(20), Article 20. https://doi.org/10.3390/ijerph182010762

Smith, K. T., & Brower, T. R. (2012). Longitudinal study of green marketing strategies that influence Millennials. *Journal of Strategic Marketing*, *20*(6), 535–551.

Su, L., & Swanson, S. R. (2017). The effect of destination social responsibility on tourist environmentally responsible behavior: Compared analysis of first-time and repeat tourists. *Tourism Management*, *60*, 308–321.

Suki, N. M. (2013). Young consumer ecological behaviour: The effects of environmental knowledge, healthy food, and healthy way of life with the moderation of gender and age. *Management of Environmental Quality: An International Journal*, *24*(6), 726–737.

Thunberg, G., Thunberg, S., Ernman, M., & Ernman, B. (2020). *Our house is on fire: Scenes of a family and a planet in crisis*. Penguin.

Tryphena, R., & Aram, I. A. (2023). Consumer perception on sustainable clothing among urban Indians. *Journal of Engineered Fibers and Fabrics*, *18*, 15589250231168964. https://doi.org/10.1177/15589250231168964

Wang, L., Mehmood, U., Agyekum, E. B., Uhunamure, S. E., & Shale, K. (2022). Associating Renewable Energy, Globalization, Agriculture, and Ecological Footprints: Implications for Sustainable Environment in South Asian Countries. *International Journal of Environmental Research and Public Health*, *19*(16), 10162. https://doi.org/10.3390/ijerph191610162

Widayat, W., Praharjo, A., Putri, V. P., Andharini, S. N., & Masudin, I. (2021). Responsible consumer behavior: Driving factors of pro-environmental behavior toward post-consumption plastic packaging. *Sustainability*, *14*(1), 425.

Ye, Y., Ngo, H. H., Guo, W., Chang, S. W., Nguyen, D. D., Fu, Q., Wei, W., Ni, B., Cheng, D., & Liu, Y. (2022). A critical review on utilization of sewage sludge as environmental functional materials. *Bioresource Technology*, 127984.

Zhang, G., & Zhao, Z. (2012). Green Packaging Management of Logistics Enterprises. *Physics Procedia*, *24*, 900–905. https://doi.org/10.1016/j.phpro.2012.02.135