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Sustainable Practice Exposure And Consumer Reactions To Csr: The Role Of Brand Perception In Pakistan'S Fmcg Sector

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Abstract

This study analyses the impact of sustainable practices on C-C identification, loyalty, and advocacy in relation to the mediating role of brand competence perception and ethical brand image, while involving the moderating role of CSR attributions between FMCG brands. Based on attribution theory, it applies quantitative explanations to interactions within the proposed model. This questionnaire was structured by the Likert scale questionnaire for Pakistani fashion brands, and 300 responses were analyzed through PLS-SEM to evaluate structural and measurement models. The finding indicated that SPE has positively significant effects on GP. Similarly, GP has positively significant effects on CFR. CFR has positively significant effects on RI. Additionally, SPE has positively significant effects on BCP and EBI. Moreover, BCP has positively significant effects on CCILA. EBI has positively significant effects on CCILA. BCP, EBI have positively significant mediates between SPE and CCILA. GP has positively significant mediates between SPE and CFR. Also, CFR has positively significant mediates between GP and RI. ICSRA and ECSRA showed positively insignificant moderation effects, except that ICSRA negatively and significantly moderates the relationship between SPE and EBI. This study provides managerial implication that the FMCG brand manager may apply and integrate sustainability into product development and communication strategies to enhance consumer trust, ethical brand image, and brand loyalty over time.

Keywords: Customer-Company Identification, Loyalty and Advocacy, Corporate Social Responsibility, Sustainable Practices, FMCG Industry, Pakistan.

Introduction

In today's FMCG landscape, companies are expected to go beyond compliance regarding sustainable practices. Practices like eco-friendly packaging, responsible sourcing, and efficient operations are rapidly gaining a competitive edge. The FMCG sector in Pakistan faces increasing consumer awareness and growing regulatory and societal pressures to adopt corporate social responsibility (CSR) into core operations (Khan et al., 2024). Consumers now show awareness of how brands approach sustainability and ethics, alongside perceptions of brand competence and ethical brand image, influencing purchase behavior (Rasool et al., 2022).

Research in Pakistan shows that perceived CSR positively influences brand image, impacting satisfaction and trust in consumer-brand relationships. Green marketing and sustainability practices enhance brand equity and loyalty globally, but little is known about how exposure to sustainable practices drives brand perceptions and consumer outcomes (Irfan et al., 2023). The FMCG industry in Pakistan is rapidly expanding, valued at USD 8.2 billion in 2024, and with 6–7% projected growth (Khan et al., 2024). Overall, sustainability trends are reshaping the sector, as 56% of urban Pakistani consumers prefer eco-friendly packaging, pushing firms to adopt greener production and distribution practices (Shoukat et al., 2025).

The increased attention to sustainability may still fall short of overcoming practical challenges that hinder FMCG companies in Pakistan from going green. Many companies have introduced green packaging and resource-efficient operations, yet most consumers do not purchase these products due to higher costs or lack of awareness (Aslam et al., 2025). In urban markets like Karachi, while consumers are generally positive toward sustainable packaged products, their willingness to pay remains low (Hussain & Khan, 2024). Brands struggle to change perceptions of competence or ethical standing, especially when sustainability messages are vague, risking accusations of greenwashing. Pakistani FMCG brands' sustainability practices exist but are poorly communicated. This study investigates how exposure to sustainable behaviors affects brand perceptions and consumer outcomes, helping firms optimize resources (Yu, 2023).

Although sustainability and CSR have been studied extensively in global FMCG research, major contextual and theoretical gaps remain in Pakistan. Previous studies have primarily focused on general CSR effects on consumer trust and purchase intention, without addressing specific sustainable initiatives such as green packaging, carbon footprint reduction, and recycling (Kankam-Kwarteng et al., 2022). Furthermore, the mediating roles of brand competence perception and ethical brand image in explaining how sustainable practices influence consumer outcomes have not been adequately explored (Hu, 2025). Research on CSR attributions as a moderating factor, which affects whether consumers perceive firm actions as genuinely ethical or self-serving, is also limited (Rashid et al., 2024). Western-centric studies often overlook developing markets like Pakistan, where environmental consciousness, cultural norms, and purchasing power differ. This study addresses these gaps by examining urban Pakistani consumers aged 25–45 and their responses to sustainable FMCG practices (Aslam et al., 2025). Therefore, the purpose of the research is to examine the impact of sustainable practices on C-C identification, loyalty, and advocacy with the mediating role of brand competence perception and ethical brand image and the moderating role of CSR attributions among FMCG brand consumers in Karachi.

The study holds significant value for both academia and business as it addresses a relevant issue in sustainable marketing. Academically, it contributes knowledge on how consumers perceive sustainability through exposure to sustainable practices that enhance brand competence, ethical image, and outcomes like loyalty and advocacy, while integrating attribution theory to explain CSR motivations. For FMCG marketers and managers in Pakistan, the findings provide actionable insights for designing effective strategies, identifying meaningful sustainable initiatives like eco-friendly packaging, and communicating CSR authentically, ultimately fostering consumer trust, long-term loyalty, brand advocacy, and sustainable competitive advantage.

The research paper comprises six sections, presenting a comprehensive overview of the study. The first section, Introduction, provides the background, problem statement, research objectives, gaps, significance, and scope. The second section, Literature Review and Hypotheses, outlines the theoretical foundation and develops hypotheses. The third section, Methodology, details the research design, sampling, data collection, and analysis techniques. The fourth section, Results, presents the empirical findings. The fifth section, Discussion, interprets the results in relation to theory and prior research. The final section, Conclusion and Recommendations, summarizes the study and offers practical and policy implications.

Literature Review

Theoretical Underpinnings

In 1958, Fritz Heider developed Attribution Theory, which suggests individuals attempt to understand their own and others' behavior by attributing actions to internal factors, like personal qualities or intentions, and external factors, such as circumstances or environmental consequences (Heider, 2013). In marketing, it explains how consumers interpret brand actions, particularly sustainable practices. Authentic, value-based internal attributions enhance trust and positive brand engagement, while profit-driven external attributions reduce loyalty (Qayyum et al., 2023). This framework is relevant for examining how sustainable practices influence consumer identification, loyalty, and advocacy, highlighting the role of CSR attributions in shaping perceptions and behavioral intentions toward brands (Javed et al., 2024).

Development of the Hypotheses

Consumer and business awareness of environmental issues has increased, linking sustainability with green packaging (Thapliyal et al., 2024). Green packaging, using biodegradable, recyclable, or reusable materials, reduces environmental harm and promotes energy-efficient production (Dejene & Gudayu, 2024). Exposure to sustainable practices enhances consumer trust in eco-conscious brands, strengthens brand equity, and encourages environmentally responsible behavior. This cycle reinforces sustainability, connecting consumer education, corporate responsibility, and environmental preservation in modern markets (Lau & Wong, 2024). Thus, the hypothesis has formed:

H1: Sustainable practice exposure has a positive impact on green packaging.

Green packaging significantly reduces the carbon footprint from production, shipping, and disposal of materials (Asare Obeng et al., 2025). By using sustainable, biodegradable, or recyclable materials, it lowers greenhouse gas emissions compared to conventional packaging. Innovations like recycled materials, lightweight packaging, and efficient logistics further cut emissions (Lisboa et al., 2024). Additionally, green packaging promotes responsible consumption, waste reduction, and recycling, enhancing corporate reputation and consumer trust while supporting long-term environmental sustainability and global climate initiatives (Duarte et al., 2024). Thus, the hypothesis has formed:

H2: Green packaging has a positive impact on reducing the carbon footprint reduction.

Carbon footprint reduction and recycling are closely linked to environmental sustainability, conserving resources and preventing degradation (Mansour & Nowak, 2025). Recycling transforms waste into renewable resources, reducing energy use and CO_2 emissions compared to virgin materials. This synergy encourages participation in recycling

programs, supports circular economy practices, and promotes green production (Ozkan, 2025). Government policies, technological innovation, and awareness campaigns further enhance recycling adoption, creating a positive cycle in which carbon management drives large-scale sustainable practices and environmental accountability (Drobetz et al., 2025). Thus, the hypothesis has formed:

H3: Carbon footprint reduction has a positive impact on recycling initiatives.

Research indicates that sustainable practice exposure reflects consumers' awareness and perception of a company's environmentally responsible actions, such as eco-friendly production, ethical processing, waste reduction, and energy conservation (Ozkan, 2025; Salinas & Abril, 2025). Increased exposure fosters positive cognitive associations, enhancing perceptions of brand competence, reliability, and innovation (Jagani & Saboori-Deilami, 2025). Transparency in sustainability efforts builds trust, differentiates the brand from less responsible competitors, and reinforces long-term strategic value, portraying the brand as ethical and competent. Overall, sustainable practices strengthen consumer trust, perceived brand competence, and loyalty (Pang et al., 2023). Thus, the hypothesis has formed:

H4: Sustainable practice exposure has a positive impact on brand competence perception.

Asare Obeng et al. (2025) define sustainable practice exposure as consumers' awareness of and engagement with a company's environmental and social initiatives, including eco-friendly production, fair labor, renewable energy, waste reduction, and community welfare. A brand's ethical image its transparency, moral responsibility, and commitment to social good is crucial in shaping consumer perceptions and trust. Exposure through marketing, CSR campaigns, or product design enhances perceived authenticity, emotional connection, and loyalty (Crocco et al., 2025). Overall, ongoing sustainable practices strengthen ethical reputation, moral legitimacy, and long-term consumer relationships (Arhinful et al., 2025). Thus, the hypothesis has formed:

H5: Sustainable practice exposure has a positive impact on ethical brand image.

Perceived brand competence reflects consumers' belief that a brand is trustworthy, technically capable, and delivers high-quality products or services (Fatma & Khan, 2023). It positively influences consumer–company identification, loyalty, and advocacy by fostering trust, emotional attachment, and self-congruence (Shimul et al., 2025). Competence lowers perceived purchase risk, encourages repeat buying, and strengthens commitment, while driving brand advocacy as satisfied consumers share positive experiences, enhancing word-of-mouth promotion and pride in the brand's expertise and consistent performance (Shoukat et al., 2025). Thus, the hypothesis has formed:

H6: Brand competence perception positively influences C-C identification, loyalty, and advocacy.

The ethical brand image reflects consumers' perception of a brand as morally responsible, honest, transparent, and socially conscious, embodying values like fairness, integrity, and sustainability (Liu et al., 2025). It strengthens consumer–company identification, loyalty, and advocacy by fostering emotional attachment, trust, and a sense of belonging (Chi & Phan, 2025). Ethical brands encourage positive word-of-mouth, support, and defense in social networks, enhancing reputation, market power, and enduring consumer relationships (Liu et al., 2025). Thus, the hypothesis has formed:

H7: Ethical brand image has a positive impact on C-C identification, loyalty, and advocacy.

Previous research indicates that brand competence perception is a key mediator linking exposure to sustainable practices with C–C identification, loyalty, and advocacy (Liu et al., 2025). Awareness of environmental and ethical initiatives, such as waste reduction, renewable energy use, and fair labor practices, fosters the belief that a brand is ethical, skilled, and innovative (Navaraj & Inkarojrit, 2024). This perception enhances emotional attachment, loyalty, and advocacy, translating sustainability awareness into positive consumer behaviors and long-term brand value (Khan & Fatma, 2023). Thus, the hypothesis has formed:

H8: Brand competence perception positively mediates the impact of exposure to sustainable practices on C-C identification, loyalty, and advocacy.

Research indicates that ethical brand image significantly shapes the relationship between exposure to sustainable practices and C–C identification, loyalty, and advocacy (Liu et al., 2025). When consumers perceive a brand as ethical, transparent, and socially responsible through actions like waste reduction, responsible sourcing, and community support they are more likely to identify emotionally with the brand (Chi & Phan, 2025). This perception enhances loyalty, reduces switching to competitors, and encourages advocacy, as consumers actively support and defend the brand within their social networks. Hence, ethical brand image reinforces long-term brand value and societal impact (Liu et al., 2025). Thus, the hypothesis has formed:

H9: Ethical brand image positively mediates the impact of exposure to sustainable practices on C-C identification, loyalty, and advocacy.

Recent studies highlight green packaging as a key mediator in sustainability (Jaggi et al., 2025; Odock et al., 2024). By using biodegradable, recyclable, or eco-friendly materials, green packaging bridges sustainable practices with tangible environmental benefits, such as carbon footprint reduction. It enhances consumer awareness, engagement, and organizational efforts to lower greenhouse gas emissions, promoting environmentally conscious behavior and reinforcing corporate sustainability initiatives (Carrión-Bósquez et al., 2025). Thus, the hypothesis has formed:

H10: Green packaging positively mediates the impact of sustainable practices exposure on carbon footprint reduction.

Green packaging enhances recycling efforts by reducing the carbon footprint. Being sustainable, biodegradable, and recyclable, it supports responsible consumption and waste management. Environmental benefits, such as lower greenhouse gas emissions, are realized only when disposal and recycling are properly practiced (Enyejo et al., 2024). This encourages a cycle of material reuse, sustaining environmental initiatives and keeping both companies and consumers engaged in long-term sustainability efforts (Deshmukh & Tare, 2024). Thus, the hypothesis has formed:

H11: Carbon footprint reduction positively mediates the impact of green packaging on recycling initiatives.

Extrinsic CSR attributions moderate the impact of exposure to sustainable practices on brand competence perception. When consumers view a company's sustainability initiatives as genuinely intended, they perceive higher management quality, innovation, and reliability, strengthening brand competence (Hassan Hosny & AbdelAziz, 2024). Similarly, authentic CSR enhances ethical brand image, fostering consumer identification, loyalty, and advocacy. Conversely, perceived self-serving CSR motives reduce trust, ethical credibility, and brand competence, weakening consumer-brand relationships and loyalty (Choi et al., 2025). Thus, the hypothesis has formed:

H12: Intrinsic CSR attributions positively moderate the relationship between sustainable practice exposure and brand competence perception, such that the relationship is stronger when intrinsic CSR attributions are high.

H13: Intrinsic CSR attributions positively moderate the relationship between sustainable practice exposure and ethical brand image, such that the relationship is stronger when intrinsic CSR attributions are high.

Extrinsic CSR attributions weaken the relationship between exposure to sustainable practices and brand competence perception. When consumers perceive sustainability initiatives as driven by business or strategic motives, confidence in the brand's competence, reliability, and innovation decreases (Castro-Casal et al., 2025). Similarly, extrinsic CSR dampens ethical brand image, reducing trust, identification, loyalty, and advocacy, as consumers see the brand as opportunistic rather than principled. Overall, externally

motivated CSR undermines the positive effects of sustainability exposure, highlighting the need for genuine, intrinsically driven CSR to enhance consumer perceptions and behavior (Zaborek & Kurzak Mabrouk, 2025). Thus, the hypothesis has formed:

H14: Extrinsic CSR attributions negatively moderate the relationship between sustainable practice exposure and brand competence perception, such that the relationship is weaker when extrinsic CSR attributions are high.

H15: Extrinsic CSR attributions negatively moderate the relationship between sustainable practice exposure and ethical brand image, such that the relationship is weaker when extrinsic CSR attributions are high.

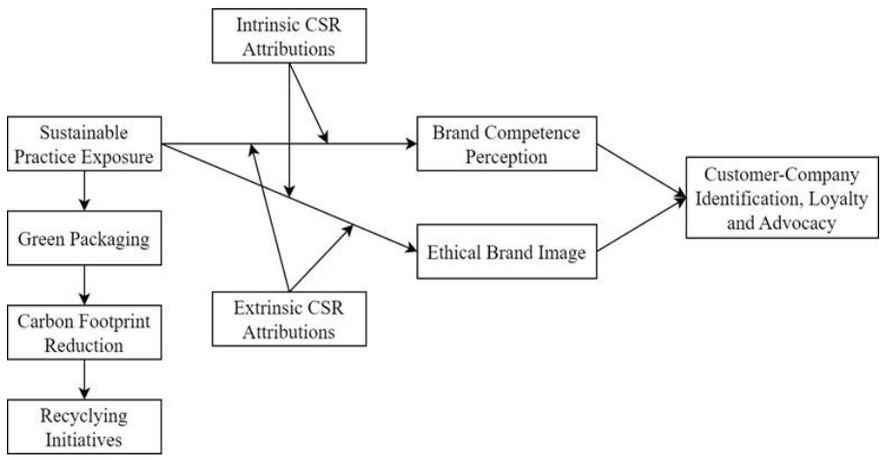

Figure 1: Research Framework

Methodology

Sample and Population

The study population comprises consumers of branded FMCG in Karachi, aged 25–45, who are aware of and purchase brands practicing sustainable and CSR activities. Karachi's diverse and educated population ensures informed responses. Following Green (1991) formula, a minimum of 130 respondents was required; however, 300 responses were collected to improve generalizability. A non-probability convenience sampling technique was employed, targeting accessible consumers at shopping malls, supermarkets, and online. This method is suitable for exploratory behavioral marketing research, despite its limitations regarding result generalizability (Etikan et al., 2016).

Measures

Table 1 shows the measures and sources of the instrument.

Table 1:

Measurement and Sources

Variable Name	N Items	Source(s)
Sustainable Practice Exposure	7	(Saqib & Zhang, 2021)
Green Packaging	7	(Wahab et al., 2021)
Carbon Footprint Reduction	7	(Üstgörül et al., 2024)
Recycling Initiatives	5	(Kurz et al., 2007)
Intrinsic CSR Attributions	3	(Boğan & Sarıışık, 2020)
Extrinsic CSR Attributions	5	(Boğan & Sarıışık, 2020)
Brand Competence Perception	4	(Xue et al., 2020)
Ethical Brand Image	4	(Garanti, 2019)
C-C Identification, Loyalty and Advocacy	6	(Wolter & Cronin Jr, 2017)

Data Collection

The study used a survey method, including online questionnaires via Google Forms, to efficiently collect quantitative data from a large number of FMCG consumers in Karachi. This approach enabled standardized measurement of perceptions, attitudes, and behaviors related to sustainable practices and CSR. Surveys facilitate structured, comparable responses, reduce researcher bias, and allow for convenient participation across different locations, making it an effective method for examining consumer behavior and testing hypotheses in a cost- and time-efficient manner (Groves et al., 2011).

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Data Analysis

PLS-SEM was used for data analysis, i.e., suitable for models with multiple constructs, mediators, and moderators. It supports theory-building and predictive research without strict data assumptions. The analysis assessed measurement model reliability, construct validity, and tested hypothesized relationships, providing robust estimates of direct and indirect effects (Hair et al., 2019).

Results and Discussions

Measurement Model

The measurement model evaluates reliability and validity of constructs and their indicators. It makes each variable to be measured correctly. In the research process, it assisted in concluding that the survey questions were powerful to actualize some of the concepts and philosophies (Hair et al., 2019).

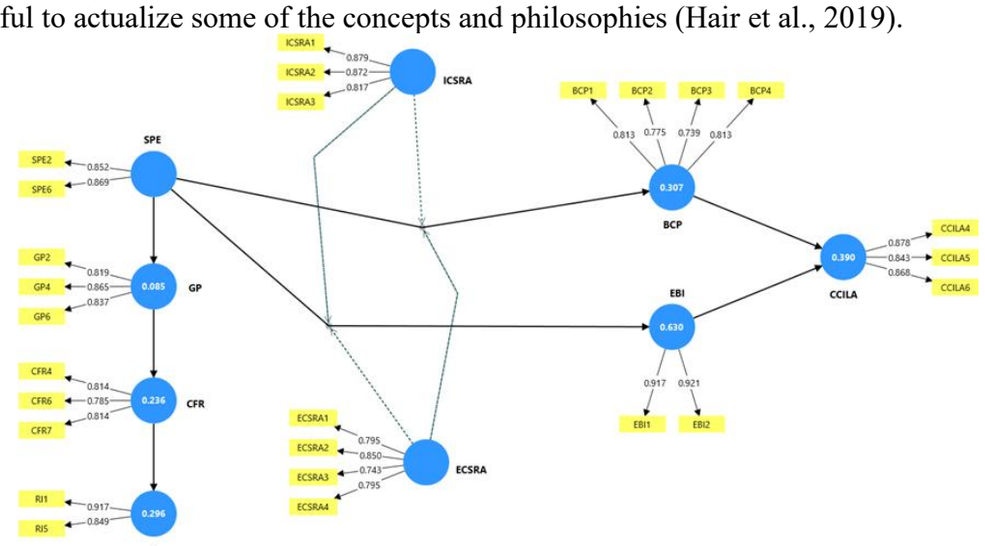

Figure 4.1: PLS Algorithm using SmartPLS

Table 2 provide the results of measurement model using PLS algorithm technique.

Table 2:

Measurement Model

Constructs	Items	Loadings	Prob.	VIF	Alpha	CR	AVE
Brand Competence Perception	BCP1	0.813	0.000	1.803	0.810	0.866	0.617
	BCP2	0.775	0.000	2.178			
	BCP3	0.739	0.000	2.056			
	BCP4	0.813	0.000	1.471			
C-C Identification Loyalty and Advocacy	CCILA4	0.878	0.000	1.846	0.830	0.898	0.745
	CCILA5	0.843	0.000	1.889			
	CCILA6	0.868	0.000	1.983			
Carbon Footprint Reduction	CFR4	0.814	0.000	1.315	0.732	0.846	0.647
	CFR6	0.785	0.000	1.573			
	CFR7	0.814	0.000	1.560			
Ethical Brand Image	EBI1	0.917	0.000	1.910	0.817	0.916	0.845
	EBI2	0.921	0.000	1.910			
Extrinsic CSR Attributions	ECSRA2	0.795	0.000	1.925	0.810	0.874	0.634
	ECSRA3	0.850	0.000	1.717			
	ECSRA4	0.743	0.000	1.718			
Green Packaging	GP2	0.795	0.000	1.904	0.800	0.878	0.707
	GP4	0.819	0.000	1.511			
	GP6	0.865	0.000	1.903			
Intrinsic CSR Attributions	ICSRA1	0.837	0.000	1.728	0.825	0.892	0.734
	ICSRA3	0.879	0.000	1.987			
Recycling Initiatives	RI1	0.872	0.000	1.478	0.725	0.877	0.781
	RI5	0.817	0.000	1.478			
Sustainable Practice Exposure	SPE2	0.917	0.000	1.301	0.749	0.851	0.740
	SPE6	0.849	0.000	1.301			

The above table showed that indicators have loadings higher than the recommended threshold of 0.70 with probability level and VIF below 5% (Hair et al., 2022; Hair et al., 2011) manifesting that indicators have substantial reliability for achieving construct validity. Moreover, constructs have alpha coefficient and composite reliability higher than the recommended thresholds of 0.70 and 0.80, respectively (Hair et al., 2019), and therefore, construct reliability has been established. Lastly, the table showed that constructs have AVE coefficients higher than 0.50 (Hair et al., 2011, 2013), and thus, it manifested a substantial degree of convergence between indicators and constructs.

Discriminant Validity

Discriminant validity accesses the distinctness of various factors vis-a-vis one another such that each measure coincides with a characteristic and not with others. This is evaluated by the HTMT ratio, for which under 0.90 are acceptable. Fornell-Larcker criteria (FLC) tests the AVE square roots against correlations and loading items on the respective constructs as per the crossloadings (Ab Hamid et al., 2017; Cheung & Wang, 2017).

Table 3 show the result of FLC for discriminant validity assessment.

Table 3:

Fornell-Larcker Criterion (FLC)

	BCP	CCILA	CFR	EBI	ECSRA	GP	ICSRA	RI	SPE
BCP	**0.786**								
CCILA	0.449	**0.863**							
CFR	0.347	0.266	**0.804**						
EBI	0.549	0.610	0.541	**0.919**					
ECSRA	0.342	0.495	0.422	0.629	**0.796**				
GP	0.342	0.004	0.485	0.362	0.186	**0.841**			
ICSRA	0.150	0.421	0.217	0.381	0.483	0.008	**0.856**		
RI	0.384	0.262	0.544	0.547	0.390	0.312	0.336	**0.884**	
SPE	0.500	0.438	0.507	0.649	0.387	0.292	0.192	0.472	**0.860**

SPE = Sustainable Practice Exposure; GP = Green Packaging; CFR = Carbon Footprint Reduction; RI = Recycling Initiatives; ICSRA = Intrinsic CSR Attributions; ECSRA = Extrinsic CSR Attributions; BCP = Brand Competence Perception; EBI = Ethical Brand Image; CCILA = C-C Identification Loyalty and Advocacy

The above table showed that diagonally bold values (i.e., square root of the AVE coefficients) are higher than their respective correlation coefficients, providing that constructs have a higher degree of variance than their correlation with other constructs (Ab Hamid et al., 2017; Fornell & Larcker, 1981). Therefore, constructs have a substantial degree of divergence; thus, discriminant validity using FLC has established.

Table 4 shows the result of HTMT ratio for discriminant validity assessment.

Table 4:

Heterotrait-Monotrait (HTMT) Ratio

	BCP	CCILA	CFR	EBI	ECSRA	GP	ICSRA	RI	SPE
BCP									
CCILA	0.496								
CFR	0.388	0.346							
EBI	0.578	0.735	0.693						
ECSRA	0.374	0.611	0.515	0.741					
GP	0.409	0.145	0.623	0.413	0.237				
ICSRA	0.157	0.526	0.262	0.442	0.566	0.157			
RI	0.425	0.346	0.706	0.722	0.487	0.367	0.436		
SPE	0.577	0.590	0.713	0.891	0.502	0.376	0.241	0.679	

SPE = Sustainable Practice Exposure; GP = Green Packaging; CFR = Carbon Footprint Reduction; RI = Recycling Initiatives; ICSRA = Intrinsic CSR Attributions; ECSRA = Extrinsic CSR Attributions; BCP = Brand Competence Perception; EBI = Ethical Brand Image; CCILA = C-C Identification Loyalty and Advocacy

Henseler et al. (2016); Henseler et al. (2015) recommended that the HTMT ratio between two latent constructs should be less than 0.90 in order to establish discriminant validity. The table shows that the highest HTMT ratio of 0.891 was found among SPE and EBI, implying that discriminant validity using HTMT ratio has attained.

Table 5 show the result of crossloadings for discriminant validity assessment.

Table 5:

Crossloadings

	BCP	CCILA	CFR	EBI	ECSRA	GP	ICSRA	RI	SPE
BCP1	**0.813**	0.354	0.322	0.509	0.286	0.276	0.116	0.328	0.313
BCP2	**0.775**	0.329	0.326	0.388	0.197	0.298	0.128	0.182	0.339
BCP3	**0.739**	0.236	0.016	0.084	-0.081	0.158	0.009	0.018	0.134
BCP4	**0.813**	0.408	0.274	0.504	0.395	0.279	0.143	0.440	0.558
CCILA4	0.433	**0.878**	0.225	0.594	0.372	0.077	0.341	0.177	0.437
CCILA5	0.267	**0.843**	0.292	0.514	0.539	-0.063	0.459	0.277	0.379
CCILA6	0.445	**0.868**	0.181	0.461	0.392	-0.021	0.305	0.236	0.313
CFR4	0.328	0.190	**0.814**	0.476	0.361	0.365	0.237	0.587	0.505
CFR6	0.277	0.212	**0.785**	0.422	0.220	0.363	0.064	0.307	0.328
CFR7	0.224	0.246	**0.814**	0.399	0.413	0.446	0.192	0.372	0.361
EBI1	0.492	0.523	0.508	**0.917**	0.566	0.347	0.371	0.634	0.609
EBI2	0.518	0.597	0.486	**0.921**	0.590	0.318	0.330	0.374	0.584
ECSRA1	0.274	0.394	0.257	0.464	**0.795**	0.168	0.519	0.323	0.152
ECSRA2	0.242	0.469	0.448	0.635	**0.850**	0.223	0.452	0.419	0.428
ECSRA3	0.271	0.380	0.153	0.298	**0.743**	0.023	0.222	0.124	0.121
ECSRA4	0.312	0.332	0.407	0.529	**0.795**	0.132	0.307	0.307	0.443
GP2	0.360	-0.082	0.358	0.194	0.048	**0.819**	0.069	0.242	0.106
GP4	0.290	0.121	0.450	0.443	0.349	**0.865**	0.106	0.408	0.394
GP6	0.226	-0.087	0.398	0.209	-0.017	**0.837**	-0.185	0.081	0.162
ICSRA1	0.157	0.398	0.203	0.381	0.401	0.009	**0.879**	0.438	0.173
ICSRA2	0.157	0.288	0.177	0.334	0.467	0.008	**0.872**	0.276	0.218
ICSRA3	0.031	0.425	0.175	0.221	0.363	-0.002	**0.817**	0.032	0.063
RI1	0.367	0.230	0.541	0.452	0.322	0.325	0.177	**0.917**	0.455
RI5	0.307	0.235	0.408	0.530	0.378	0.214	0.460	**0.849**	0.371
SPE2	0.348	0.309	0.383	0.547	0.285	0.355	0.180	0.396	**0.852**
SPE6	0.508	0.442	0.487	0.569	0.379	0.154	0.152	0.415	**0.869**

SPE = Sustainable Practice Exposure; GP = Green Packaging; CFR = Carbon Footprint Reduction; RI = Recycling Initiatives; ICSRA = Intrinsic CSR Attributions; ECSRA = Extrinsic CSR Attributions; BCP = Brand Competence Perception; EBI = Ethical Brand Image; CCILA = C-C Identification Loyalty and Advocacy

The above table showed that indicators have higher loadings in their constructs compared to their crossloadings in other constructs. This showed that constructs shared higher variance in their constructs than in other constructs (Ab Hamid et al., 2017; Cheung & Wang, 2017) manifesting that constructs have substantial divergence from other constructs establishing discriminant validity using crossloadings.

Predictive Power and Relevance

Table 6 shows the predictive power of the endogenous constructs using PLS Algorithm.

Table 6:

Predictive Relevance

	R Square	Q Square
Brand Competence Perception	0.307	0.271
C-C Identification Loyalty and Advocacy	0.390	0.322
Carbon Footprint Reduction	0.236	0.120
Ethical Brand Image	0.630	0.614
Green Packaging	0.085	0.077
Recycling Initiatives	0.296	0.065

From the results in the Table 6, it indicates that the model has predictive relevance and explanatory power in different levels within all construct. Ethical brand image exhibits the best predictive performance, R^2 is 63.0%, and the Q^2 is 61.4%, implying High predictive strength and great predictive relevance. This means that the model variables largely explain its variance. C–C identification, loyalty, and advocacy are also powerful predictors with an R^2 of 39.0% and a Q^2 of 32.2%, these results suggest that these constructs possess adequate predictive relevance and significant explanatory power.

Moderately high R^2° 30.7% and Q^2 27.1% values were achieved for brand competence perception indicating that the predictive relevance is robust. R^2 = 29.6%) but 6.5% which reflects a poor Q^2. Similarly, carbon footprint reduction has an R^2 of 23.6 percent and a Q^2 of 12.0 percent, reflecting low predictive strength and modest relevance. Green

packaging reveals the weakest predictive capability, with an R^2 of only 8.5 percent and a Q^2 of 7.7 percent, suggesting minimal predictive relevance. Overall, the constructs show mixed levels of predictive contribution within the structural model (Chin, 1998; Cohen, 1988, 1992).

Structural Model

The structural model helps in comparing all variables of the study to each other. Researchers can understand how one factor influences another, and whether those relationships are strong or weak by direct-effect, specific indirect effect and moderation analysis. The model's mechanisms are then revealed further, in depth. Overall, the structural model helps to test hypotheses and confirm whether a proposed framework reflects empirical data, a fundamental component of research data analysis (Hair et al., 2020).

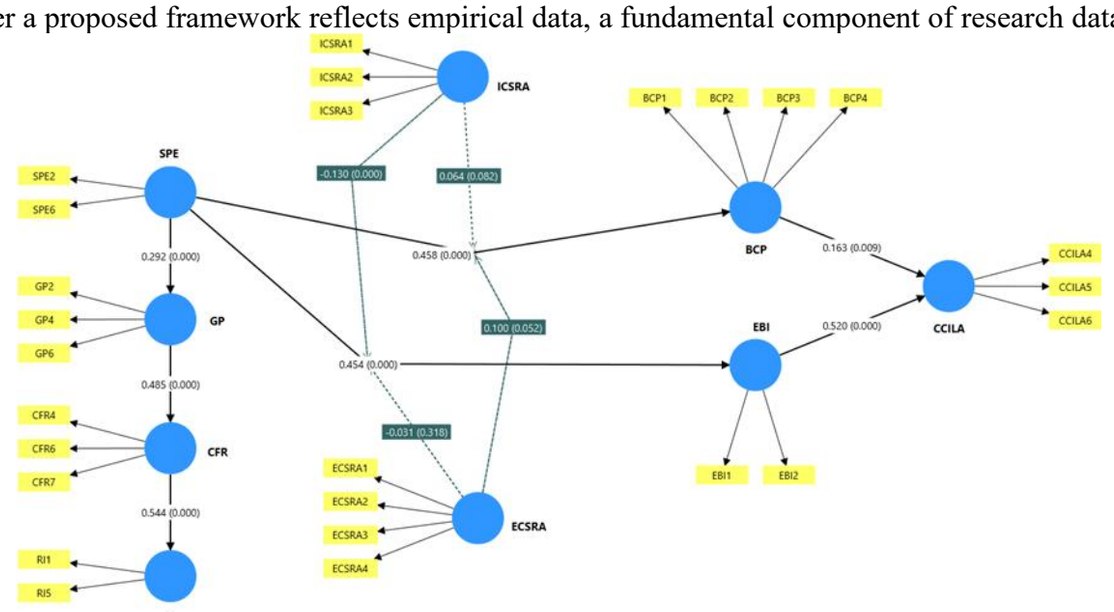

Figure 3: PLS Bootstrapping using SmartPLS

Table 7 provide the result of direct-effect analysis for hypothesis testing using PLS-SEM.

Table 7:

Direct-Effect Analysis

	Estimate	Std. Dev.	t-Statistics	Prob.	Decision
H1: SPE -> GP	0.292	0.069	4.237	0.000	Supported
H2: GP -> CFR	0.485	0.045	10.852	0.000	Supported
H3: CFR -> RI	0.544	0.040	13.599	0.000	Supported
H4: SPE -> BCP	0.458	0.069	6.591	0.000	Supported
H5: SPE -> EBI	0.454	0.050	9.166	0.000	Supported
H6: BCP -> CCILA	0.163	0.062	2.620	0.009	Supported
H7: EBI -> CCILA	0.520	0.052	9.958	0.000	Supported

SPE = Sustainable Practice Exposure; GP = Green Packaging; CFR = Carbon Footprint Reduction; RI = Recycling Initiatives; BCP = Brand Competence Perception; EBI = Ethical Brand Image; CCILA = Customer-Company Identification Loyalty and Advocacy

The result showed that SPE ($\beta = 0.292$; $p < 0.05$) has positively significant effects on GP. Similarly, GP ($\beta = 0.485$; $p < 0.05$) has positively significant effects on CFR. CFR ($\beta = 0.544$; $p < 0.05$) has positively significant effects on RI. Additionally, SPE ($\beta = 0.458$; $p < 0.05$) has positively significant effects on BCP. SPE ($\beta = 0.454$; $p < 0.05$) has positively significant effects on EBI. Moreover, BCP ($\beta = 0.163$; $p < 0.05$) has positively significant effects on CCILA. EBI ($\beta = 0.520$; $p < 0.05$) has positively significant effects on CCILA.

Table 8 provide the result of specific indirect-effect analysis for hypothesis testing based on PLS-SEM.

Table 8:

Specific Indirect-Effect Analysis

	Estimate	S. D.	t-Stats	Prob.	Decision
H8: SPE -> BCP -> CCILA	0.075	0.024	3.180	0.001	Supported
H9: SPE -> EBI -> CCILA	0.236	0.038	6.280	0.000	Supported
H10: SPE -> GP -> CFR	0.142	0.039	3.629	0.000	Supported
H11: GP -> CFR -> RI	0.264	0.037	7.183	0.000	Supported

SPE = Sustainable Practice Exposure; GP = Green Packaging; CFR = Carbon Footprint Reduction; RI = Recycling Initiatives; BCP = Brand Competence Perception; EBI = Ethical Brand Image; CCILA = Customer-Company Identification Loyalty and Advocacy

The result showed that BCP (β = 0.075; p < 0.05) has positively significant mediates between SPE and CCILA. EBI (β = 0.236; p < 0.05) has positively significant mediates between SPE and CCILA. GP (β = 0.142; p < 0.05) has positively significant mediates between SPE and CFR. Also, CFR (β = 0.264; p < 0.05) has positively significant mediates between GP and RI.

Table 9 provide the result of moderation effect analysis.

Table 9:

Moderation Analysis

	Estimate	S. D.	t-Stats	Prob.	Decision
H12: ICSRA x SPE -> BCP	0.064	0.037	1.741	0.082	Not Supported
H13: ICSRA x SPE -> EBI	-0.130	0.030	4.293	0.000	Supported
H14: ECSRA x SPE -> BCP	0.100	0.051	1.946	0.052	Not Supported
H15: ECSRA x SPE -> EBI	-0.031	0.031	0.998	0.318	Not Supported

SPE = Sustainable Practice Exposure; ICSRA = Intrinsic CSR Attributions; ECSRA = Extrinsic CSR Attributions; BCP = Brand Competence Perception; EBI = Ethical Brand Image

The result showed that ICSRA (β = 0.064; p > 0.05) has positively insignificant moderates between SPE and BCP. ICSRA (β = -0.130; p < 0.05) has negatively significant moderate between SPE and EBI. ECSRA (β = 0.100; p > 0.05) has positively insignificant moderates between SPE and BCP. Lastly, ECSRA (β = -0031; p > 0.05) has positively insignificant moderates between SPE and EBI.

Discussions

The result showed that SPE has positively significant effects on GP. This result is supported with Boz et al. (2020), who explained that exposure to sustainable practice heightens the sense of ecological concerns, encouraging individuals as well as organizations to use alternatives, which are green. With increased knowledge, the stakeholders realize the environmental advantages of eco-friendly packaging, which increases the tendency towards biodegradable and recyclable products. Similarly, Lekesizturk and Oflac (2022) supported this result and stated that positive environmental attitudes and norms are developed as a result of exposure to sustainable initiatives. This prompts the decision-makers to consider adopting green packaging in the companies because it fits their long-term sustainability.

The study found that GP has positively significant effects on CFR. This result is consistent with Shaikh and Hyder (2023), who demonstrated that green packaging involves biodegradable, recyclable or lightweight materials that consume less resources and less energy in the production, transportation as well as disposal. Green packaging will greatly reduce the total carbon footprint by reducing material waste and enhancing efficient production processes. Likewise, Shi et al. (2023) supported this result and concluded that the processes of sustainable disposal produce less output that is carbon-intensive in nature and therefore green packaging will produce a quantifiable decrease in carbon emission in the long run.

The finding showed that CFR has positively significant effects on RI. This result is supported with Obersteiner et al. (2021), who explained that when individuals and organizations realize that environmental benefits are realized when carbon footprint is cut down, they will have more reasons to promote recycling. Moreover, Mungkung et al. (2016) supported this result and stated that the role of resource recovery and waste minimization is brought to the forefront by carbon footprint reduction. This enhances the essence of commitment to recycling as a critical reuse of materials, emission to landfills and maintenance of the circular economy.

The result showed that SPE has positively significant effects on BCP. This outcome is consistent with Kervyn et al. (2022), who indicated that exposing stakeholders to sustainable practice also increases the understanding of the stakeholders on the eco-friendly operations of a brand. Seeing a company taking steps to help build sustainable initiatives, consumers perceive the brand as more informed, responsible, and capable in terms of dealing with environmental issues, which enhances the perception of the brand competence. Additionally, Kuchinka et al. (2018) supported this result and explained that being exposed to sustainable practices shows that a brand is capable of adopting the contemporary, moral, and efficient processes. Such visibility makes the consumers confident that the company has good managerial skills and strategic competency.

The study found that SPE has positively significant effects on EBI. This outcome is supported with Jia et al. (2023), who explained that exposure on sustainable practices underscores the concern of a company in regards to environmental responsibility. The stakeholders perceive sustained sustainable actions as a sign of ethical conduct when they see the same and this reinforces an ethical brand image on the organization. In addition, He and Lai (2014) supported this result and concluded that being exposed to practices worked out in a sustainable manner will assist the consumer in perceiving the brand as one that shares values with a wider society and ecology.

The finding showed that BCP has positively significant effects on CCILA. This result is supported with Hassan et al. (2016), who explained that the consumers get more confidence in the products and services of a brand when they see it as competent. This trust helps build greater recognition with the brand, which promotes loyalty and the desire to promote it to other people. Similarly, Rather et al. (2022) supported this result and stated that a strong brand competence image is an indicator of trustworthiness and expertise. Consumers will also tend to establish emotional ties, loyalty, and aggressively market the brand, therefore increasing C-C identification, loyalty and advocacy tendencies.

The result showed that EBI has positively significant effects on CCILA. This result is supported with Khan and Fatma (2023), who demonstrated that good ethical brand image leads to consumer trust and admiration which builds bond of shared values between the brand and its customers. This affective fit increases the identification with the brand, promoting loyalty and recommending. In addition, He and Lai (2014) supported this result and concluded that brands that are considered ethical are deemed to be honest and socially responsible. This image encourages customers to become loyal, recurrent and refer to others, which strengthens C-C identification, loyalty and promotion.

The result showed that BCP has positively significant mediates between SPE and CCILA. This result is supported with Adewole (2022), who explained that the mediating relationship between sustainable practice exposure and the resulting brand competence perception is through brand competence perception. When buyers notice a brand actively participating in sustainable activities, they perceive it as competent and informed and bonding identity, loyalty, and promotion. Also, Gorska-Warsewicz et al. (2021) supported this result and stated that using brand competence, sustainable practices help to strengthen consumer confidence in the competencies of the brand. Through this trust, the emotional commitment and loyalty are enhanced, leading to consumers associating with the brand which magnifies the strengths of exposure to sustainable practices.

The study found that EBI has positively significant mediates between SPE and CCILA. This outcome is consistent with Adewole (2022), who demonstrated that the relationship between sustainable practice exposure and moral responsibility and, consequently, social commitment are mediated by ethical brand image. When the consumers appreciate that the sustainable moves of a brand are ethically motivated, it increases their identification, loyalty and recommendation of the brand. Moreover, Gorska-Warsewicz et al. (2021) supported this result and indicated that through focusing on ethical behavior, the brand is consistent with the social and environmental values of consumers. This identification helps to build trust and emotional connection which encourages consumers to stick with the brand and promote it hence boosting the impact of exposure to sustainable practices.

The finding showed that GP has positively significant mediates between SPE and CFR. This result is supported with Carvalho et al. (2016), who explained that green packaging plays the mediating role by converting the exposure of sustainable practices into practical environmental friendly acts. When consumer or organizations know about sustainable practices, usage of green packaging reinforces their move and this has a direct impact on quantifiable carbon emission decrease. Likewise, Boz et al. (2020) supported this result and stated that sustainable practices exposure influence the stakeholders to prefer recyclable, biodegradable, or resource efficient packaging. Green packaging, in its turn, reduces energy and waste consumption, which, in effect, reduces the carbon footprint, and is a major mediator between the awareness of sustainability and environmental results.

The study found that CFR has positively significant mediates between GP and RI. This result is consistent with Asim et al. (2022), who stated that the reduction of carbon footprint is the mediator variable that indicates the actual environmental value of green packaging. As the stakeholders see that packaging decisions lead to a decrease in emissions using eco-friendly packaging, they will be more willing to participate in recycling programs, which connects their packaging preferences to concrete sustainability results. Furthermore, Hekkert et al. (2000) supported this result and indicated that carbon footprint reduction enhances the significance of responsible disposal of materials by emphasizing the effects of carbon emission reduction. This knowledge fosters recycling as an essential measure towards maintaining the benefits of the environment as recycling of green packing would translate to significant involvement in the recycle program.

The result showed that ICSRA has positively insignificant moderates between SPE and BCP. This result is supported with Costa (2014), who demonstrated that though intrinsic CSR attributions show the real intentions of a brand in relation to ethical behavior, consumers might not consider the motivation as a key function in evaluating brand competence basing on performance and results. This leads to positive but statistically non-significant moderating effect between brand competence perception and exposure to sustainable practice. Similarly, Ginder et al. (2021) supported this result and explained that even in a situation where the perception of a brand is that it is intrinsically responsible, the actual practices of sustainable practices are more important than the ethical motives of the same to the stakeholders.

The study found that ICSRA has negatively significant moderates between SPE and EBI. This result is supported with Jia et al. (2023), who indicated that in case the negations of the intrinsic CSR attributions are not insignificant, consumers can interpret the sustainability efforts of the brand as exaggerated or not in line with the real ethical conduct. This disbelief minimizes the impact of sustainable practice exposure, which is effective on the ethical image of the brand. Likewise, Donia and Sirsly (2016) supported this result and demonstrated that lot of attention on intrinsic CSR may lead to the notion of self-promotion, instead of responsibility. Consequently, despite exposure to sustainable practices consumers might question ethical intentions of the brand which undermines the advancement of ethical brand image.

The finding showed that ECSRA has positively insignificant moderates between SPE and BCP. This outcome is consistent with Tosun and Köylüoğlu (2023), who concluded that extrinsic attributions of CSR are directed towards the external rewards or recognition of the CSR but not real capability. Consequently, the moderating influence they exert on the connection between sustainable practice exposure and brand competence perception can be positive but insignificant as consumers consider overt behavior more than external motivation in their competence judgement. Also, Nguyen et al. (2022) supported this result and stated that although extrinsic CSR can slightly improve the perceptions of brand competence, the consumers are the ones that consider the effectiveness and the results of sustainable practices. Thus, the extrinsic CSR attributions do affect the relationship between sustainable practice exposure and perceived brand competence but not to a large extent such that its effect can be observed to be significant.

The study found that ECSRA has positively insignificant moderates between SPE and EBI. This outcome is supported with Jia et al. (2023), who explained that extrinsic CSR attributions prioritize more on the external reward or recognition than an actual capability. Consequently, they can play a moderation role with either a positive or a negative but non-significant effect on the relationship between sustainable practice exposure and brand competence perception because consumers focus more on what they see rather than on what drives them when making competence judgments. Likewise, Shin and Ki (2021) supported this result and concluded that although extrinsic CSR can have a minor positive influence on the perceptions of brand competence, consumers evaluate the efficiency and result mainly of the sustainable practices. Hence, even though the extrinsic CSR attributions impact positively, it is not substantial to make a significant difference to the correlation between sustainable practice exposure and the perceptions of brand competence.

Conclusion and Recommendations

Conclusion

The research examine the impact of sustainable practices on C-C identification, loyalty, and advocacy with the mediating role of brand competence perception and ethical brand image and the moderating role of CSR attributions among FMCG brand consumers. The study used attribution theory. In addition, the study used a quantitative methodology. The target population of the study have consumers of branded FMCG in Karachi who are aware of and purchase brands that practice sustainable practices and CSR activities. The study and used PLS-SEM to assess a complex modeling framework. Data collection was accomplished through a rapid and comprehensive five-point Likert scale questionnaire as part of the survey method.

The study found that SPE has positively significant effects on GP. Similarly, GP has positively significant effects on CFR. CFR has positively significant effects on RI. Additionally, SPE has positively significant effects on BCP and EBI. Moreover, BCP has positively significant effects on CCILA. EBI has positively significant effects on CCILA. BCP, EBI have positively significant mediates between SPE and CCILA. GP has positively significant mediates between SPE and CFR. Also, CFR has positively significant mediates between GP and RI. Moreover, ICSRA has positively insignificant moderates between SPE and BCP. ICSRA has negatively significant moderate between SPE and EBI. ECSRA has positively insignificant moderates between SPE and BCP. Lastly, ECSRA has positively insignificant moderates between SPE and EBI. Overall, sustainable practices can help develop consumer–brand relationships through the development of brand competence and ethical brand perception; there is limited influence from CSR attributions as moderators, highlighting the importance of genuine sustainability initiatives.

Theoretical Implications

This study provides theoretical implications by applying attribution theory to examine the effect of sustainable practices on consumer identification, loyalty, and advocacy in Pakistan’s FMCG sector. It addresses gaps by explaining consumers’ interpretations of brand sustainability efforts and their psychological impact (Jia et al., 2023). The study

highlights mediating roles of performance-awareness and ethical brand image, translating sustainable actions into positive emotional and behavioral responses. Attribution theory explains how perceived true or false motives influence trust, identification, and engagement (Costa, 2014). CSR attribution is moderated by trust, emphasizing perceived authenticity in loyalty and advocacy. Findings contribute to understanding consumer responsiveness to responsible business conduct in developing markets, revealing psychological mechanisms and providing a foundation for future research and practical applications in Pakistan's FMCG sector (Rather et al., 2022).

Recommendations

Based on the study's results, several recommendations are proposed for managers of Pakistani FMCG brands. Managers should prioritize sustainable practices, including eco-friendly packaging, responsible sourcing, energy-efficient production, and waste recycling, and communicate these efforts clearly through product labels, digital media, and corporate channels using simple, local language. Emphasizing that sustainability enhances product quality, safety, and performance, alongside regular reporting on certifications and guarantees, will build consumer trust and loyalty. Managers should maintain an ethical brand image by avoiding greenwashing, supporting social welfare initiatives, ensuring fair CSR practices, and collaborating with credible NGOs to strengthen authenticity and positive consumer perceptions.

Furthermore, managers should implement sustainability-focused loyalty programs that reward environmentally conscious consumer behavior, enhancing emotional attachment and advocacy through storytelling, social media engagement, and referral incentives. Consistent sustainability strategies, including audits, improved packaging, enhanced product quality, and expanded CSR partnerships, should be integrated into the corporate identity. These initiatives will foster long-term value-based relationships, reinforce emotional bonds with consumers, enhance brand reputation, and generate sustained competitive advantages while contributing positively to society and the environment.

Limitations and Future Research

This research has a number of limitations. Firstly, it is limited by its geographical location, focusing only on FMCG consumers in Karachi, which reduces overall validity; future research should include cities and rural areas across Pakistan and beyond. The use of convenience sampling may introduce selection bias, so probability sampling is recommended. The cross-sectional design limits the ability to measure changes in consumer attitudes over time, and reliance on self-reported questionnaires may lead to common method bias; mixed methods such as interviews or experiments are suggested. The study focused on brand competence and ethical brand image, excluding factors like green trust, consumer values, and brand credibility, and was tested only in FMCG, so future research should examine other sectors.

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