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## Unveiling greenwashing: Assessing its impact on Saudi consumer trust in sustainable marketing practices

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### Abstract

This study investigates the impact of greenwashing on consumer trust within the Saudi Arabian market, specifically examining awareness levels and the ability to detect deceptive environmental claims. The research utilizes a mixed-methods approach, integrating qualitative insights with quantitative data collected from 824 consumers to assess market sentiment and behavior. Results indicate moderate consumer awareness; however, a significant inability to distinguish between genuine and misleading claims exists. This confusion deeply undermines trust and negatively influences purchasing decisions regarding sustainable products. Greenwashing remains a critical barrier to sustainable marketing success in emerging markets. Without improved verification mechanisms, consumer skepticism will persist, hindering the adoption of genuine sustainable consumption. To rebuild credibility, businesses must prioritize transparency through verifiable initiatives. Concurrently, policymakers should enforce stricter guidelines and promote consumer education to curb deceptive practices and foster a trustworthy marketplace.

**Keywords:** Consumer Awareness, Consumer Trust, Environmental responsibility, Greenwashing, Saudi Arabia, Sustainable Marketing, Transparency.

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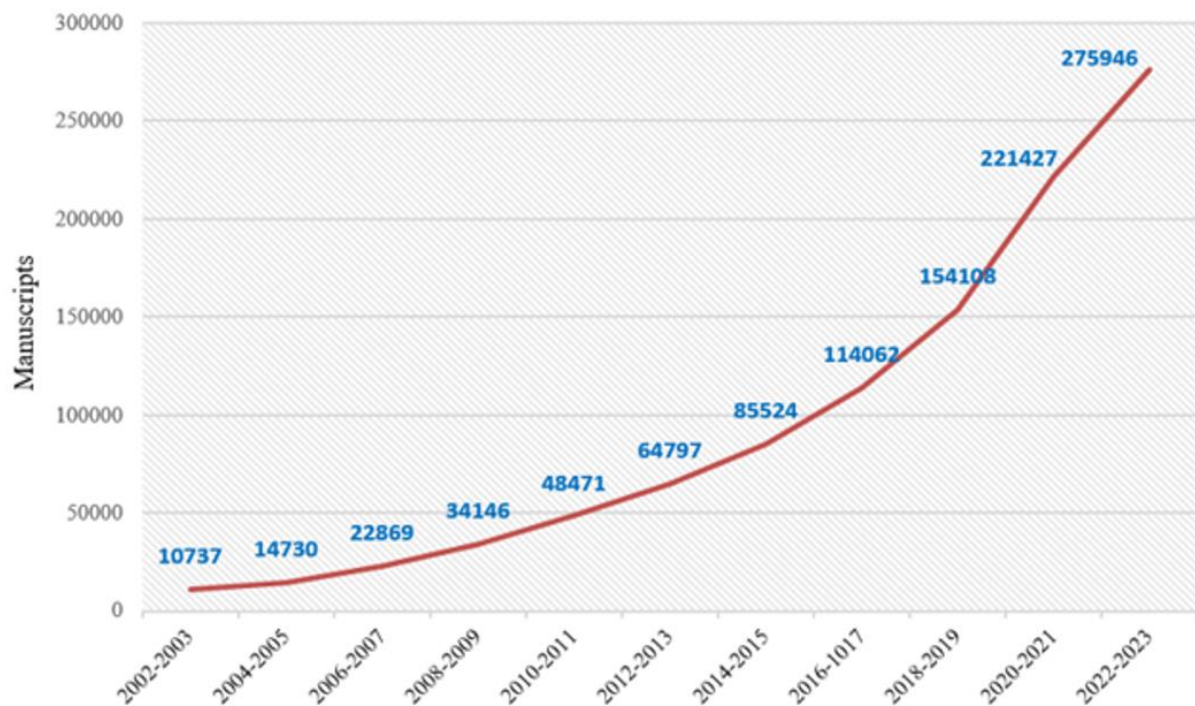
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### 1. Introduction

The widespread global interest in environmental issues has surged rapidly, elevating the significance of green marketing, also known as sustainable marketing [1]. In recent decades, green marketing has become a widely debated topic among consumers, businesses, shareholders, management, and communities [2]. Various green initiatives have been adopted across a range of sectors, such as energy, food, tourism, packaging, fashion, architecture, and government infrastructure, reflecting the growing emphasis on sustainability practices [3]. As implementing a sustainability strategy can incur additional costs for businesses, some companies have resorted to greenwashing, which involves making misleading

claims about their environmentally friendly practices [4]. In the contemporary landscape of marketing, the interplay between sustainability, consumer trust, and the pervasive issue of greenwashing has emerged as a critical focal point for academic inquiry and corporate strategy. Greenwashing, defined as the deceptive practice where companies convey a misleading impression of environmental responsibility, has gained prominence as corporations increasingly adopt sustainability as a key marketing strategy [5].

Greenwashing refers to the practice of making deceptive or exaggerated claims about a company's environmental efforts, often using symbols or marketing language to present a facade of sustainability [6]. This approach creates the impression of environmental responsibility, even when the company's practices do not align with its claims [7]. Concurrently, consumer trust in sustainable marketing signifies the reliance consumers place on companies' assertions of environmental responsibility when making purchasing decisions. The ability of consumers to distinguish authentic sustainable practices from deceptive greenwashing becomes pivotal in shaping trust within the realm of sustainable marketing. Pressure from suppliers and shareholders often drives companies toward adopting sustainable practices, while pressure from customers and industry groups may lead to superficial greenwashing efforts [8]. Greenwashing can be classified at different levels [9] such as product-specific or company-wide, and can manifest as direct, indirect, or even vicarious practices [2]. This study aims to comprehensively explore these intricate dynamics and the factors influencing consumer trust within the context of sustainable marketing. Global statistics on greenwashing underscore its pervasive nature, with a substantial percentage of consumers encountering greenwashing in various forms, leading to heightened skepticism. This not only highlights the prevalence of greenwashing but also underscores the urgency of understanding its impact on consumer trust. Consequently, this research seeks to address a significant gap in the current literature by individually examining the complex dynamics of consumer behavior within sustainable marketing.

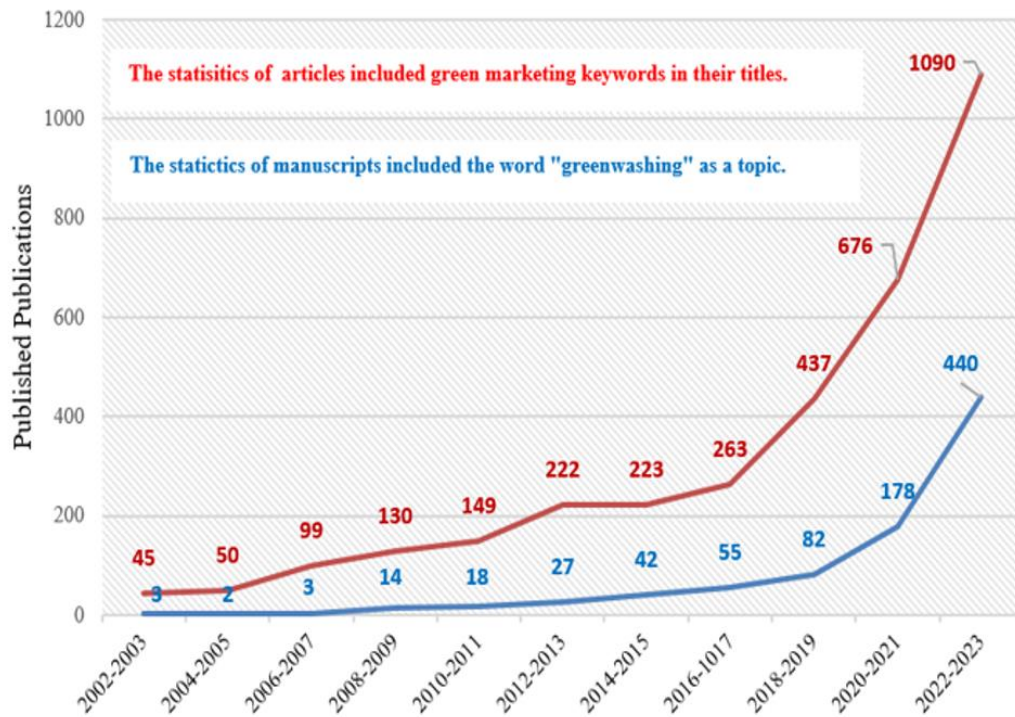


**Figure 1.**

The statistics of published manuscripts in sustainability over the past two decades based on WOS databases.

There is a rapidly growing global interest in sustainability and environmental conservation, frequently categorized under keywords such as "eco-friendly," "sustainable," "environmentally friendly," "sustainable," "green," and "renewable" [10]. An analysis of the Web of Science (WOS) databases reveals that over 1,139,405 scientific manuscripts have been published under these keywords from 1926 to June 2024. Figure 1 shows a significant increase in the number of manuscripts published under these keywords over the last two decades, with publications rising sharply from 10,737 to 275,947 manuscripts.

Increasing global interest in sustainability and environmental issues has intensified the focus on green marketing [11]. This heightened focus has also led to growing concern about greenwashing. The review of greenwashing literature indicates a significant rise in the frequency and scope of misleading environmental claims in recent years [12]. This trend has been accompanied by a substantial increase in academic studies dedicated to examining greenwashing practices [12]. Figure 2 demonstrates the strong positive relationship between the number of published manuscripts that include the term "greenwashing", and the number of articles published on green marketing. These statistics reflect a global trend to expose companies that mislead customers by falsely claiming to be environmentally friendly, thereby avoiding the efforts and costs required to preserve environmental resources, especially human health [4].



**Figure 2.**  
The statistics of “greenwashing” and “green marketing” publications over the past two decades based on WOS databases.

The key objectives of this study are to scrutinize the awareness and recognition of greenwashing practices among consumers, measure the level of transparency in sustainable marketing, and evaluate the consequent impact on consumer trust. Through a mixed-methods approach, including a comprehensive questionnaire with Likert scale items and statistical analyses such as correlation and regression, we aim to unravel the intricate relationships between greenwashing, consumer awareness, transparency, skepticism, and trust in sustainable marketing.

The findings from this study are anticipated to offer unique insights, contributing not only to academic understanding but also providing practical guidance for businesses seeking to navigate the challenges posed by greenwashing. By decoding the impact of greenwashing, this research aims to foster a more authentic and trustworthy landscape within sustainable marketing, ultimately benefiting both consumers and companies in their pursuit of ethical and environmentally conscious practices. The current study aims to answer the following three research questions:

RQ1: How aware are consumers of greenwashing practices in marketing, and to what extent can they reliably recognize such tactics in sustainability claims?

RQ2: What is the perceived level of transparency in sustainable marketing as perceived by consumers, and how does this transparency influence their trust in sustainability claims?

RQ3: To what extent does consumer skepticism towards green claims impact their trust in sustainable marketing, and how likely are consumers to fact-check or scrutinize environmental claims before establishing trust?

## 2. Literature Review and Hypotheses Generation

This section of the study is devoted to reviewing the related results of previous literature, along with reviewing the research gap that will be addressed by the current study and its generated research hypotheses that will be tested, as follows.

### 2.1. Sustainable Marketing and Consumer Trust

Research into the historical evolution of sustainable marketing reveals its transformative journey from niche markets to mainstream adoption. It is defined as the promotion of products and services with an emphasis on environmental and social responsibility, sustainable marketing has its roots in the environmental activism of the 1960s [12]. To do so, they are applying green marketing strategies to help gain competitive advantage and appeal to ecologically conscious consumers [13]. Early adopters focused on ethical consumerism, but over time, sustainable marketing evolved to address growing consumer demand for eco-friendly products [7]. Previous studies emphasize the pivotal role of societal shifts and changing consumer attitudes in steering this evolution [2]. The 1980s marked a turning point, witnessing an increased corporate focus on sustainable practices [14]. This transition paved the way for the integration of sustainability into mainstream marketing strategies. Examining historical markers provides a comprehensive understanding of sustainable marketing's growth, shedding light on pivotal moments that shaped their trajectory. Despite the extensive body of literature chronicling this historical trajectory, there exists a research gap in understanding the specific catalysts and shifts that have influenced the integration of sustainability into mainstream marketing strategies to gain more consumer trust [15]. Facing increased pressure to disclose environmental impacts, some companies selectively highlight minor positive aspects, creating an appearance of transparency while obscuring their actual environmental performance. This trend was observed in an analysis

of data from 4,750 public companies across various industries in 45 countries, based on annual reports collected by KPMG [16]. Table 1 highlights notable greenwashing claims by globally recognized companies, including their marketing strategies and subsequent criticisms for misleading environmental assertions.

**Table 1.**

Examples of notable greenwashing claims by global companies.

Company	Industry	Year	Greenwashing Claims	Source
Coca-Cola	Beverage	2023	It has been accused of greenwashing through advertising that promotes recycling and sustainability while being one of the largest plastic polluters globally.	Break Free From Plastic
PepsiCo	Food and Beverage	2023	Greenwashing accusations were made over claims of sustainable palm oil use while partnering with suppliers involved in deforestation and human rights abuses.	Rainforest Action Network
Starbucks	Food and Beverage	2023	It Introduced a "straw-less" lid to reduce plastic waste, but the new lid was revealed to contain more plastic than the old lid and straw combination.	Various environmental groups
HSBC	Banking and Financial Services	2023	It was accused of greenwashing in advertisements that promoted the bank's green initiatives without adequately addressing its significant investments in fossil fuels.	UK Advertising Standards Authority
IKEA	Furniture	2022	Using sustainably sourced wood were challenged when it was found that some wood came from illegal logging operations in Ukraine.	Earthsight
Nestlé	Food and Beverage	2022	Greenwashing allegations were made against the company for its "carbon-neutral" certification due to a perceived lack of transparency and completeness in the process.	Mighty Earth
H&M	Fashion	2022	Its line "Conscious Collection" was marketed as environmentally friendly, but the Norwegian Consumer Authority found the provided information to be insufficient and potentially misleading.	Norwegian Consumer Authority

Literatures reveal that multinational corporations often use high environmental scores to obscure their insufficient carbon reduction efforts, demonstrating a "talk more, act less" greenwashing behavior [17]. This behavior aligns with the distinction between "substantial" and "symbolic" integration of environmental practices [8]. The tendency to greenwash is more evident in large firms, industries facing intense competition, and regions with robust intellectual property protection, where the inhibitory effects on genuine environmental action are stronger [18].

Greenwashing practices can be categorized into "selective disclosure," where companies emphasize positive environmental information while omitting unfavorable aspects, and "decoupling," which refers to a disconnect between a company's sustainability claims and its actual operational practices [9]. This issue is prevalent in industries like fashion, which, according to McKinsey's State of Fashion 2022 report, generates between USD 1.7 and 2.5 trillion annually. The fashion sector's significant economic impact makes it a focal point for studying the direct and indirect effects of greenwashing on consumer perceptions and behaviors [2].

In-depth investigations into consumer trust in sustainable marketing underscore a nuanced interplay of influencing factors [9]. Defined as the confidence individuals place in a company's claims of environmental responsibility when making purchasing decisions, consumer trust is shaped by elements such as brand reputation, communication transparency, and the perceived sincerity of sustainability initiatives [19]. Previous studies consistently reveal that companies with authentic, transparent, and consistent sustainability practices are more likely to establish enduring trust with consumers [14]. The complexity of trust formation involves a delicate balance, as businesses navigate the intricate web of consumer perceptions, expectations, and corporate actions [15]. Some studies reveal both similarities and differences between G7 and non-G7 countries regarding greenwashing practices, highlighting the need for further research in non-G7 regions [20]. Additionally, greenwashing has worsened in societies characterized by power distance following the Paris Agreement, indicating that cultural and structural factors may influence the prevalence and severity of such behavior [17]. Understanding the intricate dynamics of trust formation is essential for businesses navigating the competitive landscape of sustainable marketing. However, a research gap lies in understanding the nuanced interactions among these influencing factors in the formation of consumer trust in sustainable marketing.

## 2.2. Greenwashing Phenomenon and Consumer Awareness

The term "greenwashing" was introduced in Westervelt [21] who criticized the hospitality industry's claims of eco-friendliness through towel reuse programs, suggesting that these initiatives were misleading [22]. By 1999, "greenwashing" had been added to the Concise Oxford English Dictionary, where it was defined as the spread of disinformation by organizations to create a deceptive image of environmental responsibility [9]. According to Lyon and Maxwell, greenwashing often involves selectively presenting positive environmental or social information while concealing negative aspects, thus crafting an overly favorable public image [3]. The concept has since become more widely recognized and scrutinized in discussions about corporate ethics and environmental practices [6]. The literature on greenwashing reveals it as a pervasive challenge across industries, where companies employ deceptive practices to portray a misleading image of

environmental responsibility. However, greenwashing is a marketing practice of presenting products as environmentally responsible without being so [11]. Greenwashing involves the dissemination of misleading information about a product's environmental impact, leading consumers to make decisions based on false or exaggerated sustainability claims.

Previous research has dissected various greenwashing tactics, showcasing the diverse strategies companies use to capitalize on the growing green consumer trend. Unveiling the prevalence and impact of greenwashing is paramount for devising effective counterstrategies and fostering a marketplace where consumers can make genuinely informed choices. Greenwashing is a significant concern in sustainability research, demanding a comprehensive understanding of its underlying causes and effects. Two primary dimensions are essential in examining greenwashing. The first is the "greenwashing investigation area," which addresses the objectives and scope of studying this phenomenon, with a particular focus on its drivers and consequences. The second dimension involves analyzing the factors influencing greenwashing, which can be categorized as internal (originating within the organization) or external (stemming from the broader context and environmental factors) [6]. Studies have identified key sectors prone to greenwashing, such as fashion, beauty, and food industries, demonstrating the need for sector-specific interventions to mitigate deceptive environmental claims. Previous studies have illuminated the pervasive nature of greenwashing across various industries [2]. However, a research gap exists in exploring the influence of consumers' awareness of greenwashing on their trust in sustainable marketing, which is explored through Hypothesis (1) as follows:

*H<sub>1</sub>: There is a significant relationship between consumers' awareness and recognition of greenwashing practices and their trust in sustainable marketing.*

### *2.3. Transparency in Sustainable Marketing Practices*

Research on transparency in marketing practices highlights its instrumental role in sustainable branding. Transparency, defined as companies openly communicating information about their environmental initiatives, builds credibility and enhances the perceived authenticity of a brand. Transparent communication fosters trust and reinforces a company's commitment to ethical and sustainable practices. Previous research indicates that nearly 90% of consumers view brand transparency as a critical factor in their purchasing decisions [14]. Both a green brand image and transparency significantly impact green brand trust and consumers' purchase intentions [14]. Insights from this research underscore the importance of transparency as a cornerstone in crafting effective sustainable branding strategies.

Literature indicates that consumers are more likely to support and remain loyal to brands that demonstrate transparency in their sustainability efforts [23]. The positive correlation between transparency and consumer trust underscores transparency's pivotal role in shaping consumer perceptions and influencing purchasing decisions in sustainable marketing [12]. While existing studies establish this correlation, a research gap persists in understanding the specific dimensions of transparency that have the most significant impact. Hypothesis (2) predicts that a higher degree of transparency in disclosing the entire lifecycle of products and supply chain processes will positively influence consumer trust in sustainable marketing as follows:

*H<sub>2</sub>: The level of transparency in sustainable marketing practices is significantly correlated with consumer trust in sustainable marketing.*

### *2.4. Skepticism as a Counterforce*

Previous studies investigating consumer skepticism towards green marketing claims reveal a discerning consumer base increasingly scrutinizing environmental assertion [17]. Skepticism in sustainable marketing refers to consumers questioning the authenticity of green claims, demanding evidence, and verification before trusting a company's environmental commitments [10]. Findings consistently indicate that consumers often exhibit skepticism when faced with vague or unsubstantiated green claims [16]. Researchers emphasize the significance of businesses providing verifiable evidence to support their environmental statements, thus mitigating consumer skepticism [11]. Recognizing the roots of consumer doubt and addressing them directly in marketing strategies can empower businesses to navigate and overcome consumer skepticism in the realm of green marketing [3].

This body of research contributes valuable insights for companies seeking to build credibility and trust in their sustainability communications. Understanding and addressing consumer skepticism is crucial for fostering genuine and enduring relationships between consumers and sustainable brands [8]. Consumer skepticism towards green marketing claims has become increasingly prevalent. In summary, the literature review underscores the historical evolution of sustainable marketing, the challenges posed by greenwashing, the factors influencing consumer trust, the role of transparency in sustainable branding, and the emergence of skepticism in consumer behavior [7]. Identifying and addressing these gaps in the existing literature will contribute to a comprehensive understanding of the complex dynamics within sustainable marketing, offering valuable insights for both academia and industry practitioners.

While previous studies acknowledge the existence of skepticism, a research gap exists in identifying specific information cues triggering skepticism in consumers. Hypothesis (3) proposes that vague or unsubstantiated green claims will elicit higher levels of consumer skepticism compared to transparent and evidence-backed environmental statements, as follows:

*H<sub>3</sub>: Consumer skepticism towards green claims significantly impacts their trust in sustainable marketing.*

## **3. Methodology**

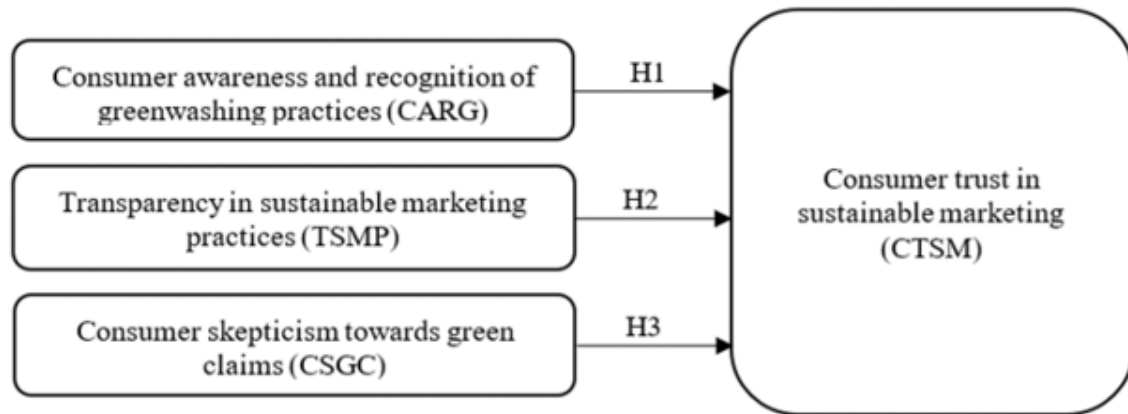
This section delineates the research design, instrumentation and validity, community research and sampling, and data collection and analysis. All procedures performed in this study adhered to ethical standards. Informed consent was obtained



from all individual participants, in compliance with the ethical guidelines of Imam Abdulrahman Bin Faisal University (IAU) and its Institutional Review Board (IRB Number: IRB-2024-14-298), under the Saudi National Committee of Bioethics (NCBE Number: HAP-05-D003).

### 3.1. Research Design

This study employs mixed-methods research design to comprehensively explore the intricate dynamics of greenwashing, consumer trust, and sustainable marketing. The qualitative component involves a systematic literature review to gather insights from existing studies, providing a foundational understanding of the research variables, and identifying gaps in the current knowledge. The quantitative component utilizes a structured survey approach, employing a self-administered questionnaire to collect data from a diverse sample of consumers. This dual-method approach allows for a triangulation of findings, enhancing the robustness and reliability of the study. Figure 3 shows and summarizes the structure of the research hypotheses.



**Figure 3.**  
The structure of the research hypotheses.

### 3.2. Instrumentation and Validity

The survey instrument comprises structured questions aligned with the research variables: awareness of greenwashing, transparency in sustainable marketing, consumer trust, and skepticism. Likert scales, ranging from "strongly agree" to "strongly disagree," facilitate quantitative analysis by measuring the degree of agreement or disagreement. Additionally, open-ended questions capture qualitative insights into participants' perceptions and experiences. Content validity was established through expert reviews, and pilot testing evaluated reliability. Pre-testing of the questionnaire, conducted with a sample of 30 volunteer participants, assessed clarity, relevance, and validity. The necessary improvements were made based on the results of all pre-tests of validity and reliability before publishing the questionnaire on the open-access link. Triangulation of data sources, member checking in qualitative analysis, and a systematic literature review enhance overall validity [6].

### 3.3. Research Community and Sampling

A random, meticulous approach was undertaken to ensure the participation of the largest possible number of consumers from diverse categories of Saudi market, including those dealing with companies that claim to follow sustainable marketing or engage in greenwashing. Leveraging social media platforms, a random sampling technique was employed to recruit participants for the study from various age groups, genders, and educational levels. An open-access link to the electronic questionnaire was provided, facilitating convenient participation for interested individuals. This methodological choice aimed to minimize potential biases and enhance the generalizability of the findings. Ultimately, 824 participants voluntarily completed the comprehensive Likert-scale questionnaire, enriching the dataset for robust analysis. Table 2 presents the description of the collected data as follows:

**Table 2.**

The collected data description.

Characteristics	Items	Frequencies (n = 824)	%
Gender	Female	378	47
	Male	437	53
Age	18–24	173	21
	25–34	264	32
	35–44	231	28
	45–54	99	12
	55 and above	58	7
Education level	High school or less	91	11
	Some college or associate degree	280	34
	Undergraduate degree	379	46
	Postgraduate degree		

### 3.4. Data Collection and Analysis

The survey was distributed through online platforms and social media channels to reach a broad and diverse audience. Participants are provided with a clear explanation of the study's purpose, and the questionnaire link was accessible for a specified period. Reminder messages were sent to enhance response rates. Data collection was anonymous to encourage candid responses, and ethical considerations were strictly adhered to throughout the process.

Quantitative data was analyzed using SPSS statistical software, employing descriptive statistics to profile the sample and inferential statistics to test the research hypotheses. Qualitative data from open-ended questions underwent thematic analysis to identify patterns, themes, and nuanced insights. The integration of quantitative and qualitative findings provided a holistic understanding of the relationships between greenwashing, consumer trust, and sustainable marketing. Furthermore, reliability was ensured using established scales and rigorous survey design, with a focus on consistency and replicability in data collection and analysis by using Cronbach's  $\alpha$  values which exceeded the value of (.7) recommended by Morgan, et al. [24] and Sekaran and Bougie [25] as shown by Table 3.

**Table 3.**The variables and items of the research questionnaire with the ( $\alpha$ ) values of the reliability for each variable.

Variables / Items	$\alpha$
Consumer trust in sustainable marketing (CTSM)	0.93
– How much do you trust marketing messages that claim to be sustainable?	
– How likely are you to trust a company that openly shares information about its sustainable practices?	
– How likely are you to trust a company after encountering green claims?	
Consumer awareness and recognition of greenwashing practices (CARG)	0.91
– How familiar are you with the concept of greenwashing in marketing?	
– How confident are you in recognizing greenwashing practices?	
– How often do you actively seek information to verify sustainability claims in marketing?	
Transparency in Sustainable Marketing Practices (TSMP)	0.89
– How transparent do you think companies are in communicating their sustainable practices?	
– How clear and comprehensive do you find the sustainability information provided by companies?	
– To what extent do you believe companies disclose the environmental impact of their products?	
Consumer skepticism towards green claims (CSGC)	0.87
– How often do you doubt the accuracy of sustainability claims made by companies?	
– How skeptical are you about companies' motives when promoting environmental initiatives?	
– How likely are you to fact-check sustainability claims before trusting them?	

## 4. Results

This section outlines the results of statistical analyses testing three hypotheses related to customer trust in sustainable marketing (CTSM). The variables examined include consumer awareness and recognition of greenwashing practices (CARG), transparency in sustainable marketing practices (TSMP), and consumer skepticism towards green claims (CSGC). The summarized findings are presented in Table 4.

**Table 4.**

The hypotheses test results.

Hypotheses / Variables	Sig.	Statistical Methods	Coefficients	Test Results
H1: CARG → CTSM	***	Correlation analysis Logistic regression	$r = 0.58$ Wald Chi-square $\chi^2 = 34.62$	Supported
H2: TSMP → CTSM	***	Regression analysis Structural equation modeling	$\beta = 0.45$ , $R^2 = 0.24$ Standardized $\beta = 0.62$ , $R^2 = 0.36$	Supported
H3: CSGC → CTSM	***	T-test Regression analysis	$t = 9.45$ (Mean between: 3.7–5.3) $\beta = -0.65$ , $R^2 = 0.37$	Supported

**Note:** Significance level: (\*\*\*)  $p > 0.001$ . CARG = Consumer awareness and recognition of greenwashing practices. TSMP = Transparency in sustainable marketing practices. CSGC = Consumer skepticism toward green claims. CTSM = Consumer trust in sustainable marketing.

#### 4.1. Hypothesis 1: CARG → CTSM

“H1: There is a significant relationship between consumers awareness and recognition of greenwashing practices and their trust in sustainable marketing”. The results strongly support Hypothesis 1. Both correlation analysis and logistic regression provided consistent and statistically significant evidence of a positive relationship between consumers' awareness and recognition of greenwashing practices and their trust in sustainable marketing. The correlation analysis revealed a robust positive correlation ( $r = 0.58$ ,  $p < 0.001$ ), indicating that as awareness and recognition of greenwashing practices increase, consumer trust in sustainable marketing also increases. Additionally, the logistic regression analysis demonstrated that consumer awareness significantly predicts higher odds of trust in sustainable marketing, with a statistically significant relationship (Wald Chi-square  $\chi^2 = 34.62$ ,  $p < 0.001$ ).

These findings collectively underscore the hypothesis, highlighting the pivotal role of consumer awareness in shaping trust within sustainable marketing practices. The consistent results from both analyses bolster the reliability and validity of the study's conclusions. Businesses can capitalize on these insights to develop communication strategies that prioritize transparency and educate consumers about greenwashing practices, thereby fostering a more informed and trusting relationship with environmentally conscious individuals.

The survey results reveal a significant level of awareness among respondents regarding greenwashing, with 85% reporting familiarity with deceptive environmental claims. This finding aligns with prior research emphasizing consumers' heightened scrutiny of companies' environmental assertions. However, the study also identifies a research gap in the nuanced understanding of specific greenwashing tactics and industries susceptible to such practices. Hypothesis 1, which predicted a positive association between awareness and the evolution of sustainable marketing practices, finds strong support in these findings.

#### 4.2. Hypothesis 2: TSMP → CTSM

“H2: The level of transparency in sustainable marketing practices is significantly correlated with consumer trust in sustainable marketing”. The results strongly support Hypothesis 2, indicating a significant positive relationship between transparency in sustainable marketing practices and consumer trust. Both regression analysis and Structural Equation Modeling (SEM) revealed consistent findings. In the regression analysis, the beta coefficient ( $\beta = 0.45$ ,  $p < 0.001$ ) shows that increased transparency predicts higher levels of consumer trust. The R-square value ( $R^2 = 0.24$ ) suggests that 24% of the variance in consumer trust is explained by transparency. SEM further confirmed a direct positive effect of transparency on consumer trust (standardized  $\beta = 0.62$ ,  $p < 0.001$ ), with an R-square value ( $R^2 = 0.36$ ) indicating that 36% of the variance in consumer trust is explained by transparency.

These robust findings from two distinct statistical approaches provide strong empirical support for Hypothesis 2. They underscore the importance for businesses in sustainable marketing to prioritize and invest in transparent communication strategies, recognizing transparency's critical role in shaping and maintaining consumer trust.

The analysis of responses regarding transparency in sustainable marketing practices reveals a diverse landscape. While 72% of respondents express satisfaction with companies' transparency in communicating environmental initiatives, a notable 28% remain skeptical. Further exploration into specific dimensions of transparency influencing consumer trust, as hypothesized in Hypothesis 2, is warranted. These findings highlight the imperative for businesses to refine their transparency strategies, focusing on aspects that resonate most with consumers.

#### 4.3. Hypothesis 3: CSGC → CTSM

“H3: Consumer skepticism towards green claims significantly impacts their trust in sustainable marketing”. The results strongly support Hypothesis 3. Both the t-test and regression analysis provided consistent and statistically significant evidence that consumer skepticism towards green claims significantly impacts their trust in sustainable marketing. The t-test results showed a substantial difference in mean trust scores between high and low skepticism groups (t-value = 9.45, mean scores of 3.7 and 5.3), confirming higher skepticism correlates with lower trust in sustainable marketing, consistent with Hypothesis 3. Additionally, the regression analysis demonstrated a moderate negative relationship, with the beta coefficient ( $\beta = -0.65$ ,  $p < 0.001$ ) indicating that consumer skepticism towards green claims predicts lower trust in sustainable marketing.

The R-square value ( $R^2 = 0.37$ ) suggests that 37% of the variance in trust in sustainable marketing is explained by consumer skepticism towards green claims, underscoring its influential role. These robust findings from both analytical approaches provide empirical support for Hypothesis 3. They emphasize the importance of addressing and mitigating consumer skepticism through transparent communication and evidence-backed green claims to foster trust in sustainable



marketing practices. Businesses can leverage these insights to tailor their communication strategies, enhance transparency, and effectively address consumer skepticism, thereby building and sustaining trust among environmentally conscious consumers.

Consumer skepticism towards green marketing claims is prevalent among respondents, with 65% expressing doubt in response to vague or unsubstantiated green claims. This aligns with Hypothesis 3, highlighting the significance of transparent and evidence-backed environmental statements in mitigating skepticism. Future research should focus on identifying specific cues triggering skepticism, crucial for businesses aiming to communicate effectively amid consumer skepticism.

#### *4.4. Demographic Analysis*

Based on the sample study, the findings reveal that certain demographics show more concern about greenwashing issues. Specifically, men, older individuals, and those with higher educational levels are particularly attentive to deceptive environmental claims. These groups exhibit greater awareness and skepticism toward greenwashing compared to other demographics.

The study highlights that men tend to be more aware of deceptive environmental claims than women, which fits some previous studies [26] and the positive impact of female board directors on the degree of the greenwashing [5] and Abdelkader [27]. Additionally, older participants express more skepticism toward green claims compared to younger individuals. Higher levels of education also correlate with increased skepticism toward greenwashing practices.

These insights emphasize the need for tailored communication strategies and educational initiatives aimed at different demographic groups. By addressing these concerns effectively, businesses can build trust and credibility in their sustainable marketing efforts among environmentally conscious consumers. Furthermore, these results indicate a complex relationship that warrants further investigation. The findings underscore the importance of a holistic approach to building and maintaining consumer trust in the realm of sustainable marketing.

### **5. Discussions**

The comprehensive exploration of greenwashing, consumer trust, and sustainable marketing in this study has yielded valuable insights that enrich the existing literature and offer practical implications for businesses navigating the evolving landscape of environmentally conscious consumer behavior. The findings confirm the intricate relationships between consumer awareness, transparency, skepticism towards green claims, and trust in sustainable marketing. Greenwashing may not only affect a company's profitability, but more importantly, result in ethical harm [13].

The analysis underscores the pivotal role of consumer awareness and recognition of greenwashing practices in shaping trust, as evidenced by Hypothesis 1. This aligns with prior literature emphasizing the importance of consumer awareness in influencing perceptions of corporate sustainability efforts. A group of studies indicate that perceived greenwashing affects not only environmental and product perceptions but also consumer satisfaction during website interactions. These studies suggest that website interactivity is linked to perceived greenwashing, environmental and product perceptions, and the extent of consumer engagement with their website [13]. Additionally, the findings of these studies show that greenwashing is positively associated with perceptions of corporate hypocrisy, which can lead to increased turnover intentions among employees [28].

Furthermore, Hypothesis 2 demonstrated a strong correlation between transparency and trust, supporting the positive impact of transparent communication on consumer trust in sustainable practices. Some studies have employed a range of methods, such as interviews, questionnaires, and neurophysiological techniques, to explore various aspects of greenwashing, including the influence of website design on consumer perceptions [13]. Research also suggests that sustainability ratings can help deter greenwashing by promoting ethical corporate communication [29]. Additionally, digital transformation has been found to significantly reduce greenwashing practices [27]. The effect of digital transformation is further strengthened when considering investor attention; both the online opinions of retail investors and site visits by institutional investors enhance digital transformation's inhibitory impact on greenwashing [27] and Sun, et al. [18]. Also, it aligns with some other previous studies [23] and consumer trust [30].

Hypothesis 3 revealed the negative influence of consumer skepticism on trust, corroborating previous research on the detrimental effects of skepticism on green claims [2] and Badhwar, et al. [2]. Findings documented that greenwashing is adversely linked to the consumer's green product experience, which then leads to negative WOM and lower repurchase intention [19]. Some previous studies found that greenwashing positively affects consumers' environmental concerns and their propensity to seek sustainable information. These factors, in turn, positively impact their intentions toward circular consumption [11] in addition to its impacts on economics and social values [1] and via social media [31] and Schmuck, et al. [22].

This study enhances the understanding of the multifaceted dynamics within sustainable marketing by incorporating various statistical analyses, adding depth to the exploration of how consumer perceptions and attitudes interact within the context of greenwashing. The results align with previous research underscoring the significance of transparency and consumer education in fostering trust [14]. Additionally, the identification of heightened consumer skepticism in specific industries such as fashion and beauty highlights the necessity for industry-tailored strategies, consistent with findings that different sectors face distinct challenges in building consumer trust [4]. The findings indicate that greenwashing, despite its negative reputation, might unexpectedly support sustainability efforts [11].

This study uses logistic regression and Structural Equation Modeling (SEM) to explore factors shaping trust in sustainable marketing. These methods reveal the complex effects of greenwashing on both consumers and employees, highlighting how misleading corporate practices can backfire and harm trust in environmental communications [7, 11, 28].

In summary, this study not only confirms the hypotheses linking consumer awareness, transparency, skepticism, and trust in sustainable marketing but also enriches the literature by employing a multi-method approach. The findings provide actionable insights for businesses aiming to build and maintain trust in an era where environmentally conscious consumers demand authenticity and transparency. The study advances the understanding of the intricate dynamics within sustainable marketing and underscores the need for tailored communication strategies to address the challenges posed by greenwashing and skepticism.

## 6. Conclusions

In conclusion, this study on greenwashing and consumer trust in sustainable marketing provides critical insights with significant implications for both businesses and researchers interested in the Saudi market. The findings deepen our understanding of sustainable marketing dynamics, emphasizing the intricate relationship between consumer perceptions and attitudes towards greenwashing.

The application of diverse statistical analyses enhances our comprehension of these relationships and advocates for more advanced methodologies in literature. The study underscores the pivotal role of transparency and consumer education, stressing the need for businesses to prioritize authentic communication strategies to cultivate and uphold trust. Moreover, this study suggests that many sectors encounter distinct challenges in fostering consumer trust, necessitating tailored approaches.

Practically, businesses can glean actionable insights from this study by emphasizing transparent communication, consumer education, and sector-specific interventions. As consumers increasingly prioritize authenticity and ethical practices, addressing greenwashing and skepticism through customized communication strategies becomes imperative. This study provides a valuable roadmap for businesses to align with consumer values and forge enduring relationships in an era where sustainability holds heightened importance.

## 7. Contributions and Implications to the Applied Field

This study makes significant contributions to the field of sustainable marketing by offering actionable insights and practical strategies for businesses to build and maintain consumer trust amidst greenwashing and skepticism challenges. Identifying the pivotal roles of consumer awareness, transparency, and skepticism in shaping trust provides a comprehensive roadmap for effective communication strategies.

*Consumer Awareness and Education:* The findings underscore the importance of educating consumers about greenwashing practices, enabling businesses to cultivate informed and trusting consumer bases. Heightened consumer awareness positively influences trust, highlighting the necessity for businesses to invest in consumer education initiatives.

*Transparency in Communication:* Emphasizing transparency as a key determinant in fostering trust aligns with contemporary consumer expectations for authentic and open communication about sustainability efforts. Businesses that prioritize transparent communication strategies can build and maintain stronger consumer trust.

*Industry-Specific Tailoring:* The recognition of industry-specific variations in consumer skepticism emphasizes the need for tailored approaches. Different sectors face unique challenges in building and maintaining trust, and strategies must be customized to address these sector-specific nuances.

*Practical Implications:* The practical implications of this study extend beyond theoretical considerations, guiding businesses in navigating the complexities of sustainable marketing. As companies increasingly align their practices with environmental and social values, the insights from this study provide a valuable resource for implementing targeted and effective strategies that resonate with environmentally conscious consumers and foster enduring trust in the marketplace.

*Building Enduring Trust:* By embracing these insights, businesses can navigate the pitfalls of greenwashing and build enduring trust with environmentally conscious consumers. This study empowers businesses to enhance their sustainable marketing efforts, providing a solid foundation for successful practices that align with consumer values and establishing lasting relationships in an era where sustainability is paramount.

In summary, this study offers a nuanced understanding of the dynamics within sustainable marketing practices, providing actionable recommendations for companies and stakeholders. The contributions extend beyond theoretical discourse, offering practical guidance for businesses to thrive in an era of heightened consumer expectations for authenticity and ethical behavior.

## 8. Limitations and Future Research Directions

While this study contributes valuable insights into the intricate dynamics of greenwashing, consumer trust, and sustainable marketing among Saudi consumers, it is important to acknowledge its limitations. The cross-sectional design used in this study limits the ability to establish causal relationships, underscoring the necessity for future longitudinal studies to track these dynamics over time within the Saudi market context. Additionally, the reliance on self-reported data introduces potential biases, highlighting the need for diverse data sources to validate findings and ensure robustness.

Future research could explore organizational perspectives within the Saudi market, examining how businesses perceive and address greenwashing concerns specific to this context. Investigating the effectiveness of industry-specific interventions and communication strategies in Saudi Arabia may uncover nuanced approaches tailored to local sectors. Furthermore, studying the evolving nature of Saudi consumers' perceptions and behaviors in response to dynamic

sustainability initiatives will provide a more comprehensive understanding of these phenomena within the Saudi Arabian context.

Despite these limitations, this study lays a foundation for future research to deepen insights into sustainable marketing practices and enhance consumer trust among Saudi consumers in an ever-evolving marketplace.

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