Decoding Green Consumer Behavior: A Bibliometric Review of Green Purchasing Decisions

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ABSTRACT

This study presents a bibliometric review of green consumer behavior with a specific focus on green purchasing decisions, aiming to map the intellectual structure, research evolution, and thematic trends of the field. Utilizing data from the Scopus database and visualizing networks through VOSviewer, the study analyzes keyword cooccurrence, author co-citation, and country collaboration to uncover the major contributors, conceptual clusters, and temporal dynamics within the literature. The findings highlight the centrality of core themes such as "green consumer behavior," "sustainability," and "green marketing," alongside emerging interests in "green purchase intention," "environmental knowledge," and "social media." Influential authors including Ajzen, Stern, and Hair reflect the field's grounding in psychological theory and marketing analytics. Country collaboration maps underscore the increasing prominence of India, China, and Indonesia in the global research landscape. While the field shows theoretical richness and interdisciplinary integration, it continues to face challenges such as the attitude-behavior gap and over-reliance on self-reported data. This review offers a comprehensive synthesis of current knowledge and suggests future research directions for enhancing sustainable consumer practices worldwide.

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1. INTRODUCTION

In recent years, the discourse on environmental sustainability has transitioned from niche academic circles to mainstream global agendas, significantly influencing consumer markets and corporate strategies alike. Amidst growing ecological concerns, such as climate change, resource depletion, and plastic pollution, a paradigm shift has emerged in consumer behavior—marked by the rise of the "green consumer." These individuals are increasingly integrating environmental values into their purchasing decisions, favoring products and services that minimize harm to the planet. As a result, green consumer behavior has become a focal point in both marketing and sustainability research, reflecting broader societal movements toward responsible consumption and corporate environmental responsibility [1], [2].

The proliferation of green products in various sectors-including food, fashion, electronics, and personal care—has prompted scholars to investigate the psychological, sociocultural, and economic determinants that drive green purchasing behavior. Variables such as environmental awareness, perceived consumer effectiveness, ecological beliefs, and ethical values have been explored extensively in the literature to understand what motivates consumers to adopt sustainable consumption patterns [3], [4]. Moreover, technological advancements and the widespread use of digital media have accelerated the dissemination information, environmental shaping consumer knowledge and attitudes at unprecedented speeds. The complexity of these interrelated factors makes green consumer behavior a multidimensional and evolving field of study [5].

Despite the mounting scholarly interest in this area, green consumerism remains riddled with paradoxes. While consumers often express positive attitudes toward green products, this enthusiasm does not always translate into actual purchasing behavior—a phenomenon widely known as the attitude-behavior gap [6]. Numerous studies have attempted to unravel this discrepancy by investigating contextual and situational variables such as price sensitivity, product availability, labeling trust, and social norms. Yet, the diversity in methodological approaches and regional contexts has led to fragmented findings, making it challenging to draw generalizable conclusions about the underlying mechanisms of green purchasing decisions.

In parallel, corporate responses to green consumer behavior have ranged from genuine sustainable innovations to superficial "greenwashing" strategies. As consumer scrutiny intensifies, organizations face increasing pressure to demonstrate authenticity in their environmental claims and adopt transparent marketing practices.

These dynamics have fueled scholarly debates on the role of trust, transparency, and corporate credibility in influencing green consumer choices [7]. Furthermore, policy interventions such as eco-labeling regulations, green taxation, and incentives for sustainable product development are also shaping the marketplace, prompting researchers to examine the interplay between consumer agency and institutional frameworks [8].

Given the growing complexity and interdisciplinary nature of green consumer behavior research, a comprehensive understanding of the field's intellectual structure is essential. Bibliometric analysis has emerged as a robust method to map the development, knowledge trends, and networks within this research domain. By leveraging bibliometric tools, scholars can identify influential publications, key themes, emerging areas of inquiry, and collaboration patterns that have shaped the evolution of green purchasing behavior studies over time [9]. This approach not only enables a systematic evaluation of past research but also offers strategic insights for future studies, that the academic discourse ensuring continues to address the practical challenges of promoting sustainable consumption.

Despite the burgeoning volume of research, several limitations persist in the current literature. First, there is a lack of consensus regarding the theoretical frameworks most appropriate for studying green consumer behavior. While models such as the Theory of Planned Behavior, Value-Belief-Norm Theory, and Norm Activation Model have been widely used, their applicability varies across different cultural and demographic contexts. Second, there is a growing need to bridge macro-level policy considerations with micro-level consumer psychology to develop more holistic and impactful strategies. Third, the field remains heavily dominated by studies from Western raising concerns about countries, generalizability of findings to developing economies where environmental priorities consumer behavior may and differ

substantially [10], [11]. These gaps highlight the importance of consolidating and synthesizing existing research through systematic and data-driven approaches such as bibliometric analysis.

Although the body of literature on green consumer behavior has expanded significantly in the past two decades, it remains theoretically fragmented methodologically diverse. The rapid growth of studies-spanning multiple disciplines, conceptual lenses, and regional focuses—has led to a dispersed knowledge base that lacks clear thematic convergence. As a result, researchers and practitioners alike face difficulties in navigating the field, identifying research gaps, and formulating evidencebased strategies to influence green purchasing decisions. A structured bibliometric review is therefore needed to decode the intellectual structure and evolution of this complex research landscape. This study aims to conduct a bibliometric review of the literature on green consumer behavior, with a particular focus on green purchasing decisions.

2. LITERATURE REVIEW

The concept of green consumer behavior has evolved considerably since its early conceptualization in the 1970s and 1980s, when environmentalism began to with intersect consumerism. Αs environmental degradation and climate concerns have become more pronounced, research on green consumerism has gained traction across multiple disciplines including psychology, marketing, environmental sciences, and economics. This literature review synthesizes the key themes, theoretical models, and empirical findings from the past decades of research on green purchasing decisions, while highlighting the fragmented nature of the field and the need for further integration.

One of the foundational aspects of green consumer behavior lies in understanding the psychological drivers of environmentally conscious actions. Early work in this domain focused heavily on

values and beliefs, particularly drawing on Value-Belief-Norm (VBN) proposed by [12]. This theory posits that individuals who hold strong biospheric values-those who prioritize the well-being of the environment—are more likely to engage in pro-environmental behaviors such as green purchasing. Similarly, the Theory of Planned Behavior (TPB) by [13] has been extensively utilized to understand how attitudes, subjective norms, and perceived behavioral control contribute to green purchasing intentions. Numerous studies validated TPB's applicability predicting green purchase behavior, although researchers have also called for its extension by incorporating constructs like moral norms, environmental concern, and trust in eco-labels [14], [15].

Trust and credibility, particularly in marketing claims, have become recurring themes in the literature. The rise of greenwashing, where companies exaggerate or fabricate their environmental claims to appear more sustainable, has led to increased skepticism among consumers [15]. As a result, perceived green trust and brand credibility have been identified as crucial mediators in shaping actual green purchase behavior [16]. Studies by [17] and [18] show that transparent labeling, third-party certifications, consistent corporate communication help mitigate greenwashing effects and reinforce consumer confidence. Thus, the literature acknowledges that while positive attitudes toward sustainability are important, the translation into behavior is often contingent upon contextual factors such as the reliability of information and the reputation of the brand.

The attitude-behavior gap is one of the most widely discussed phenomena in green consumer research. Despite growing awareness and favorable attitudes toward green products, many consumers still prioritize convenience, price, and familiarity in their purchasing decisions [19]–[21]. This inconsistency between intention and behavior has been attributed to factors such as high cost perceptions, limited availability, lack of

product knowledge, and low perceived consumer effectiveness. For example, [22] suggest that green products often carry price premiums that deter even environmentally conscious consumers. Moreover, the presence of conflicting motivations, such as the desire for status or luxury, can dilute sustainable intentions [23].

3. METHODS

This study employed a bibliometric analysis to systematically map the intellectual structure and research trends in the field of green consumer behavior, with a specific focus on green purchasing decisions. The data were extracted exclusively from the Scopus database, chosen for its comprehensive

4. RESULTS AND DISCUSSION

4.1 Keyword Co-Occurrence Network

coverage of peer-reviewed literature across multidisciplinary fields. A search query was formulated using keywords such as "green consumer behavior," "green purchasing," "sustainable consumption," and related terms, targeting titles, abstracts, keywords of documents published between 2000 and 2024. The final dataset was exported in RIS and CSV formats and analyzed using VOSviewer to generate co-authorship networks, keyword co-occurrence maps, and citation analyses. indexed in the Scopus database to explore the domain of IoT adoption in smart manufacturing. The Scopus database is chosen for its extensive coverage of high-.

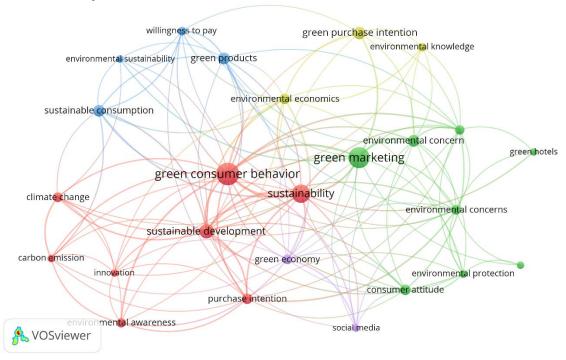


Figure 1. Network Visualization Source: Data Analysis Result, 2025

The visualization presents a keyword co-occurrence network derived from bibliometric data on green consumer behavior and green purchasing decisions. The map reveals several interconnected thematic clusters, each represented by different colors, illustrating the intellectual structure of the field. At the center of the visualization are the

keywords "green consumer behavior," "sustainability," and "green marketing", which serve as the core hubs, indicating their centrality and high frequency in the literature. These terms link to various other nodes, signifying their foundational role in framing the discourse across related subfields such as

sustainable consumption, environmental concern, and purchase intention.

The red cluster, anchored by "green consumer behavior" and "sustainability," encapsulates themes closely related to macrolevel environmental discourse. This cluster includes keywords such as climate change, carbon emission, innovation, green economy, development. and sustainable The prominence of these terms reflects a research on linking individual consumer behavior with broader issues of ecological and economic sustainability. The integration of terms like "environmental awareness" and "purchase intention" suggests an interest in behavioral change strategies aimed reducing carbon footprints and promoting systemic green transitions. The green cluster, centered around "green marketing," "environmental concern," and "consumer marketing attitude," reflects a psychological perspective. This thematic grouping suggests that a significant portion of the literature emphasizes the role of emotions, beliefs, and values in shaping sustainable Concepts consumer choices. such environmental protection, green hotels, and social media appear here, indicating interest in how green messaging and branding influence perception and behavior. This cluster also highlights how environmental concern is both a driver and an outcome of effective marketing strategies within green product ecosystems. The blue cluster groups terms such as "willingness to pay," "green products," "environmental sustainability," and "sustainable consumption." This area of the map reflects an economic and behavioral decision-making lens. Scholars in this stream explore how consumers assess value, make trade-offs, and express preferences for green alternatives. The concept of "willingness to pay" is particularly important as it quantifies the economic dimension of environmental responsibility, bridging marketing and policy applications aimed at fostering green demand.

The yellow cluster, with "green purchase intention" and "environmental knowledge" as key nodes, highlights a knowledge-based approach to consumer behavior. This cluster suggests a theoretical model in which informed consumers are more likely to develop intentions to engage in green purchasing. It intersects with the other clusters via shared links to environmental and development, concern sustainable demonstrating the interconnected nature of cognitive, emotional, and contextual drivers behavior. Together, these clusters underscore the multidisciplinary essence of green consumer behavior research, integrating insights from psychology, marketing, economics, and environmental science to develop a holistic understanding of sustainable consumption.

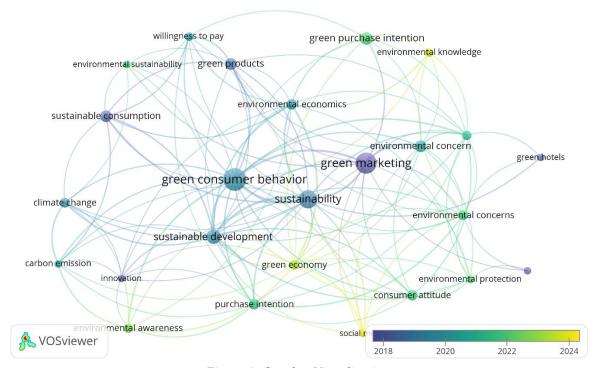


Figure 2. Overlay Visualization Source: Data Analysis Result, 2025

The overlay visualization presents the temporal evolution of keywords related to consumer behavior and purchasing decisions. The color gradientfrom dark blue (earlier years, around 2018) to bright yellow (recent years, around 2024) indicates the average publication year associated with each term. Core concepts such "green consumer behavior", "sustainability", and "green marketing" are displayed in teal and blue tones, suggesting they have been stable and frequently studied themes since the mid-2010s. These keywords represent long-standing pillars in literature and have served as consistent focal points in research over time.

In contrast, newer and more recently emerging topics appear in yellow and green hues. Notably, keywords such as "green purchase intention," "environmental knowledge," "social media," and "consumer attitude" are highlighted in bright green to yellow, indicating a recent surge of interest in these areas post-2021. This shift reflects a

growing emphasis on digital influence, behavioral intentions, and information literacy in shaping sustainable purchasing decisions. The presence of "social media" in particular as a recent node suggests that scholars are increasingly exploring how digital communication channels influence eco-conscious consumerism, likely driven by the proliferation of sustainability messaging and influencer-based marketing.

Older topics like "climate change," emission," "innovation," "carbon "sustainable consumption" are depicted in darker blue shades, showing their early emergence in the academic conversation. While these remain relevant, the trend indicates that the research focus may be shifting from macro-level environmental impacts to more micro-level consumer behavior insights. This transition from environmental problem framing to solutionoriented behavioral analysis signals a maturing field that now prioritizes actionable interventions and consumer-centric strategies

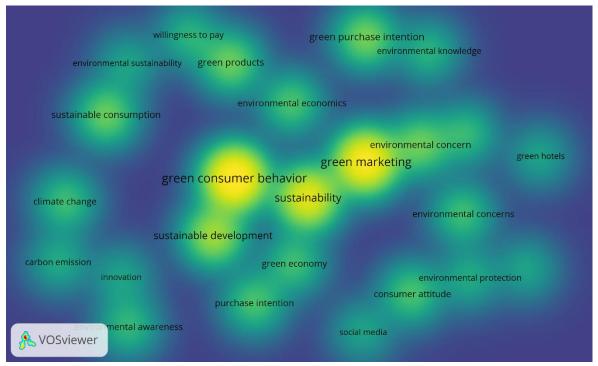


Figure 3. Density Visualization Source: Data Analysis, 2025

The heatmap visualization illustrates the density of keyword occurrences in the literature on green consumer behavior and purchasing decisions. Brighter yellow areas indicate higher concentration and frequency of terms, suggesting strong research attention and thematic centrality. The most prominent hotspots are located around "green consumer behavior," "sustainability," and marketing," confirming their role foundational pillars the scholarly in discourse. These high-density zones indicate that a substantial body of research has consistently focused on understanding the behavioral patterns, values, and marketing strategies that drive sustainable consumption.

Moderate-density clusters surrounding keywords like "environmental concern," "sustainable development," "green purchase intention," and "green products" reflect areas of growing but relatively balanced attention. Meanwhile, keywords in the cooler blue and green zones-such as "carbon emission," "environmental protection," and "social media"-are less frequent but represent emerging or specialized themes. These may offer opportunities for future research expansion, particularly in bridging microlevel consumer behavior with macro-level sustainability outcomes.

4.2 Co-Authorship Network

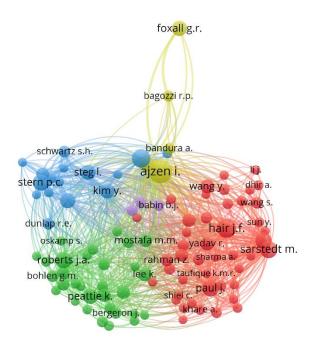




Figure 4. Author Collaboration Visualization Source: Data Analysis, 2025

The author co-citation network map reveals the intellectual structure of the green consumer behavior literature, highlighting distinct clusters of influential scholars. At the center is Icek Ajzen, whose foundational Theory of Planned Behavior bridges several clusters, reflecting his cross-disciplinary influence. The blue cluster (e.g., Stern P.C., Steg L., Schwartz S.H.) focuses on environmental psychology and value-belief-

norm theory. The green cluster (e.g., Peattie K., Roberts J.A.) represents pioneers in green marketing and sustainable consumption. The red cluster (e.g., Hair J.F., Sarstedt M., Yadav R.) is aligned with marketing analytics, structural equation modeling, and consumer behavior in emerging markets. Meanwhile, the yellow cluster, led by Foxall G.R. and Bagozzi R.P., emphasizes behavioral science and theoretical models.

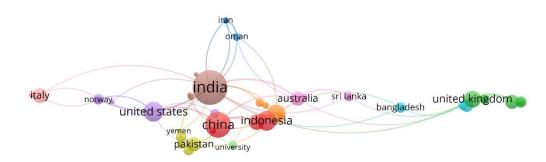




Figure 5. Country Collaboration Visualization Source: Data Analysis, 2025

The country collaboration network map reveals the global distribution and interconnectivity of research on green consumer behavior and purchasing decisions. India emerges as the most prominent hub, indicating a high volume of publications and extensive international collaboration, particularly with China, Indonesia, Iran, Australia, and the United States. This suggests India's central role in advancing research in this domain, especially within the context of emerging economies. China and Indonesia also show strong connectivity, reflecting their

growing academic output and regional partnerships. Meanwhile, the United Kingdom forms a more distinct cluster, likely representing Western-centric studies with close intra-regional collaboration. The map illustrates a vibrant and increasingly interconnected global research landscape, with notable contributions from South and Southeast Asia, emphasizing the relevance of green consumerism in developing country contexts.

4.3 Citation Analysis

Table 1. Top Cited Research

Citations	Authors and year	Title
656	[24]	Do green products make us better people?
498	[25]	Eating green. Consumers' willingness to adopt ecological food consumption behaviors
384	[26]	Going hybrid: An analysis of consumer purchase motivations
341	[27]	Exploring purchase intention of green skincare products using the theory of planned behavior: Testing the moderating effects of country of origin and price sensitivity
306	[28]	An empirical investigation of green purchase behaviour among the young generation
292	[29]	Wine consumers' environmental knowledge and attitudes: Influence on willingness to purchase

Citations	Authors and year	Title
274	[30]	Social and environmental sustainability model on consumers'
		altruism, green purchase intention, green brand loyalty and
		evangelism
256	[31]	Factors affecting consumers' green product purchase decisions
238	[32]	Ethical consumer behaviour in Germany: The attitude-behaviour
		gap in the green apparel industry
222	[33]	Factors affecting consumers' choices concerning sustainable
		packaging during product purchase and recycling

Source: Scopus, 2025

Discussion

The findings from this bibliometric analysis provide a multidimensional view of how the scholarly landscape on green consumer behavior has evolved, especially in relation to green purchasing decisions. Anchored in environmental psychology, marketing, and sustainability science, the field has grown both in scope and complexity. This discussion synthesizes the key insights derived from the network visualizations and density maps while reflecting on theoretical convergence, emerging trends, geographic dynamics, and practical implications for future research and policy interventions.

At the core of the literature is the persistent centrality of keywords such as "green consumer behavior," "sustainability," and "green marketing". Their dominance in the co-occurrence network and density visualizations indicates that these themes function as conceptual anchors, around which other subtopics revolve. These keywords not only represent frequent usage but also symbolize the thematic heart of green purchasing research. Their connectivity to peripheral terms like purchase intention, environmental concern, and green economy suggests that researchers consistently frame consumer behavior within broader sustainability narratives, linking micro-level actions to macro-level ecological economic goals.

Thematic clustering further reveals the interdisciplinary nature of the field. The co-occurrence analysis distinguished clusters oriented around marketing strategies, environmental awareness, sustainable development, and psychological drivers of

consumer decision-making. For instance, the cluster encompassing "green marketing," "environmental concern," "consumer attitude," and "environmental protection" reflects an applied orientation focusing on how businesses can shape consumer behavior through branding, communication, product design. Meanwhile, the cluster featuring "climate change," "carbon emission," and "innovation" suggests a more macro-level, policy- and technology-driven strand of literature that views green purchasing as a solution to systemic environmental issues.

Overlay visualization by publication year adds a temporal dimension to this conceptual structure. While foundational topics such as sustainability, climate change, and green economy have long anchored the field, newer keywords-such as "green intention," "environmental purchase knowledge," and "social media"-highlight recent shifts toward more granular and digital-focused studies. This temporal pattern points to a growing interest in behavioral intention models and digital influence channels as contemporary mechanisms through which sustainable consumption is facilitated. Notably, the emergence of "social media" in recent years reflects the role of digital environments in amplifying environmental messaging, shaping public discourse, and influencing purchase behavior, particularly among younger and more techsavvy consumers.

In tandem, the heatmap visualization validates the areas of scholarly intensity. Keywords with the highest density—such as "green consumer behavior," "green

marketing," "sustainability," and "sustainable development"—mark thematic hotspots where knowledge production has been most concentrated. These dense regions indicate areas of theoretical maturity, where robust empirical and conceptual frameworks exist. Conversely, sparsely populated areas in the map-like social media, green hotels, and environmental protection-point underexplored or emerging niches. These present opportunities for future exploration, particularly in context-specific studies and in incorporating digital behavioral data.

author The co-citation analysis the intellectual structure reveals underpinning the field and points to its theoretical fragmentation and integration. Scholars such as Ajzen, Stern, and Schwartz form a foundational triad representing the psychological theories most frequently applied in the study of green behavior: the Theory of Planned Behavior, Value-Belief-Norm Theory, and Norm Activation Model. These models explain the psychological and moral motivations behind sustainable choices, making them essential understanding green purchasing behavior. Meanwhile, authors like Hair, Sarstedt, and Yadav represent analytical the methodological strand of literature focusing on SEM (Structural Equation Modeling) and applied consumer behavior, often within emerging market contexts. The presence of figures like Peattie and Roberts, known for their work on green marketing and corporate strategy, indicates a strong managerial orientation as well.

The network also highlights the emergence of hybrid scholars who bridge psychology and marketing, showing how contemporary research integrates emotional, cognitive, and strategic dimensions of sustainability. The presence of Foxall, Bagozzi, and Bandura in the upper portion of the map suggests the influence of behavioral theory, including social learning and motivational constructs, in shaping how green consumer behavior is modeled and understood. This diversity suggests that the

field is both theoretically eclectic and increasingly integrative.

Geographically, the country collaboration network highlights the growing internationalization of green consumer research. India, China, and Indonesia appear as dominant contributors, reflecting the rising prominence of sustainability discourse in emerging economies. India, in particular, serves as a global hub for collaborative research, with links extending to both neighboring countries and global North institutions such as the United Kingdom, United States, and Australia. This distribution reflects the shifting center of gravity in sustainability scholarship, where developing countries are not only sites of implementation but also centers of theoretical and empirical contribution. This geographic dynamic is significant for two reasons. First, it challenges traditional Western dominance behavioral and marketing research introducing new contextual variables such as disparity, policy enforcement, income cultural infrastructure limitations, and orientations. Second, allows comparative studies that can illuminate how green purchasing behavior is differently across institutional and cultural environments. For example, eco-label trustworthiness may have different effects in Europe than in Southeast Asia, due to regulatory credibility and consumer experience. Similarly, social media's role in shaping environmental norms might be stronger in digitally connected urban areas than in rural contexts.

Despite its progress, the field continues to face theoretical and methodological challenges. One persistent issue is the attitude-behavior gap, wherein positive environmental attitudes do not necessarily translate into green purchasing actions. While several models have attempted to incorporate variables like perceived behavioral control and moral obligation, the gap persists due to complex trade-offs consumers face-such as price, convenience, and product performance. More research is needed to explore contextual moderators, including policy incentives, product availability, and socio-economic status, to better predict real-world behavior. Another challenge lies in capturing actual behavior beyond self-reported intention. Much of the current literature relies on cross-sectional surveys and self-reported data, which are susceptible to biases. The integration of big data analytics, transactional records, eyetracking studies, and behavioral experiments can provide more accurate and dynamic insights into how consumers make green decisions in real time. Additionally, the integration of blockchain for supply chain transparency, AI-driven recommendations, and personalized sustainability scores could bridge the gap between awareness and action, offering new ways to nudge consumers toward greener choices.

From a policy and managerial perspective, the findings underscore the importance of trust, transparency, and targeted messaging. Greenwashing remains a significant barrier to consumer confidence. Hence, third-party certifications, standardized labeling, and transparent corporate reporting are essential tools to build credibility. Marketing strategies must also evolve to engage different consumer segments-from eco-conscious millennials to convenience-driven shoppers-by offering personalized, affordable, and easily accessible green alternatives. Furthermore, interventions such as tax incentives, green subsidies, and environmental education campaigns play a critical role in shaping both supply-side offerings and demand-side behavior.

5. CONCLUSION

This bibliometric review has revealed that research on green consumer behavior, particularly in the context of green purchasing decisions, is both rich and rapidly evolving. Anchored by core themes such sustainability, green marketing, and environmental concern, the literature reflects multidisciplinary convergence psychology, marketing, and environmental science. The field has shown a marked shift toward behaviorally focused and digitally influenced topics in recent years, indicating growing interest in intention models and social media's role in shaping eco-conscious decisions. Author and country collaboration networks further highlight the expanding global scope of this research, with emerging economies like India and China playing increasingly central roles. Despite theoretical advancements, challenges such as the attitude-behavior gap and methodological limitations persist. Future research must prioritize real behavioral data, cross-cultural validation, and integrative models that link personal values with technological contexts. institutional and Ultimately, this study provides foundational map of the field and identifies critical directions for building a more effective, evidence-based framework promoting sustainable consumption.

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