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Analysing the Evolution of Sustainability Awareness: Trends and Insights Through Bibliometrics

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ABSTRACT

This study examines sustainability awareness research over the past two decades, identifying key trends using a bibliometric analysis of 298 publications from the Scopus database. Targeted keywords such as "sustainability awareness", "environmental consciousness", and "eco-awareness" guided the search. Findings reveal a sharp increase in research output since 2019, with journal articles (67.11%) and conference papers (23.83%) dominating. Key themes include environmental education, sustainable development, corporate social responsibility (CSR), and behavioural change. The study highlights the interdisciplinary nature of sustainability research and its growing significance. Insights from this analysis inform policymakers, educators, and researchers, supporting sustainability education, policy development, and corporate strategies to enhance environmental awareness.

Keywords: Bibliometric analysis, corporate social responsibility, environmental education, publication trends, sustainability awareness

INTRODUCTION

Sustainability awareness involves understanding the interconnected environmental, social, and economic factors that influence actions and behaviours contributing to sustainable development. This awareness is central to fostering sustainable practices across various sectors, including tourism, banking, and fashion, where adoption often faces mixed reactions and requires enhanced consumer education (Ferrer-Estévez & Chalmeta, 2021). Despite the growing interest in sustainability research, there remains a noticeable gap in consolidating a comprehensive understanding of its evolution, particularly in terms of dominant themes and trends. Bibliometric studies

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serve as essential tools for identifying influential authors, key institutions, collaborative networks, and thematic clusters, thereby illuminating the structure and dynamics of research domains (Fahimnia et al., 2015; Kumar et al., 2020). By employing bibliometric analysis, this study aims to deliver an in-depth examination of publication trends within sustainability awareness research, identifying influential contributors, prominent institutions, and pivotal thematic areas that have shaped the field's development (Geng et al., 2017; Md Khudzari et al., 2018). Understanding these trends enriches academic discourse while offering valuable insights for policymakers, practitioners, and educators in designing effective sustainability programmes and strategies. This analysis will track the evolution of sustainability awareness research, revealing shifts in focus, emerging areas of study, and the broader impact on both academia and society. By identifying national and international research networks and highlighting key trends, this study informs future sustainability inquiries (Menon & Suresh, 2020; Pouratashi, 2021). Bibliometric analyses have proven successful in identifying key figures, subjects, authors, institutions, and journals within sustainability research, enhancing the understanding of its development (Hsu, 2023). However, despite these contributions, a notable gap remains in bibliometric studies specifically focussed on sustainability awareness. Previous quantitative studies in sectors such as civil construction have predominantly addressed materials and project management, leaving sustainability awareness and its evolution underexplored (Malik et al., 2019). Ongoing research is essential to bridge these gaps, deepen understanding, and examine the implications of sustainability awareness for education and practice (Balakrishnan et al., 2019). This study lays the foundation for future research directions, promotes interdisciplinary collaboration, and advances global sustainability awareness by providing a structured analysis of existing literature and identifying areas for future exploration.

METHODS

This bibliometric analysis employed a structured and systematic methodology to examine the literature on sustainability awareness, utilising a bibliometric approach to systematically quantify and map large volumes of scientific information, identify research trends, influential contributions, and knowledge gaps (Donthu et al., 2021). The Scopus database was selected for its extensive coverage of high-quality, peer-reviewed journals across multiple disciplines, robust indexing, and advanced bibliometric capabilities (Falagas et al., 2008). A detailed search string was developed to ensure comprehensive coverage, resulting in an initial dataset of 298 documents published up to July 2024. Specialised software tools introduced by Dr. Aidi Ahmi, namely the BiblioMagica Version 2.8 and BiblioMagica Split 1.8, were employed for data management and analysis. The BiblioMagica Version 2.8 facilitated bibliometric analyses by generating insights into publication frequencies, citation patterns, and key contributors, while the BiblioMagica Split 1.8 was used for data

cleaning and harmonisation, ensuring consistency and accuracy by removing duplicates, standardising author names, and verifying citations. The Microsoft Excel was utilised for data visualisation, generating clear and informative charts and graphs to highlight trends, citation rates, and patterns in sustainability awareness research. Additionally, a systematic review process guided by the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) in Figure 1 was employed to enhance methodological transparency and reliability, with the PRISMA Flow Diagramme outlining the selection process from article identification to final inclusion. This comprehensive approach effectively mapped the sustainability awareness research landscape, identifying key trends, influential authors, prominent journals, and emerging research areas, providing a valuable foundation for future research, policymaking, and practices aimed at addressing global sustainability challenges.

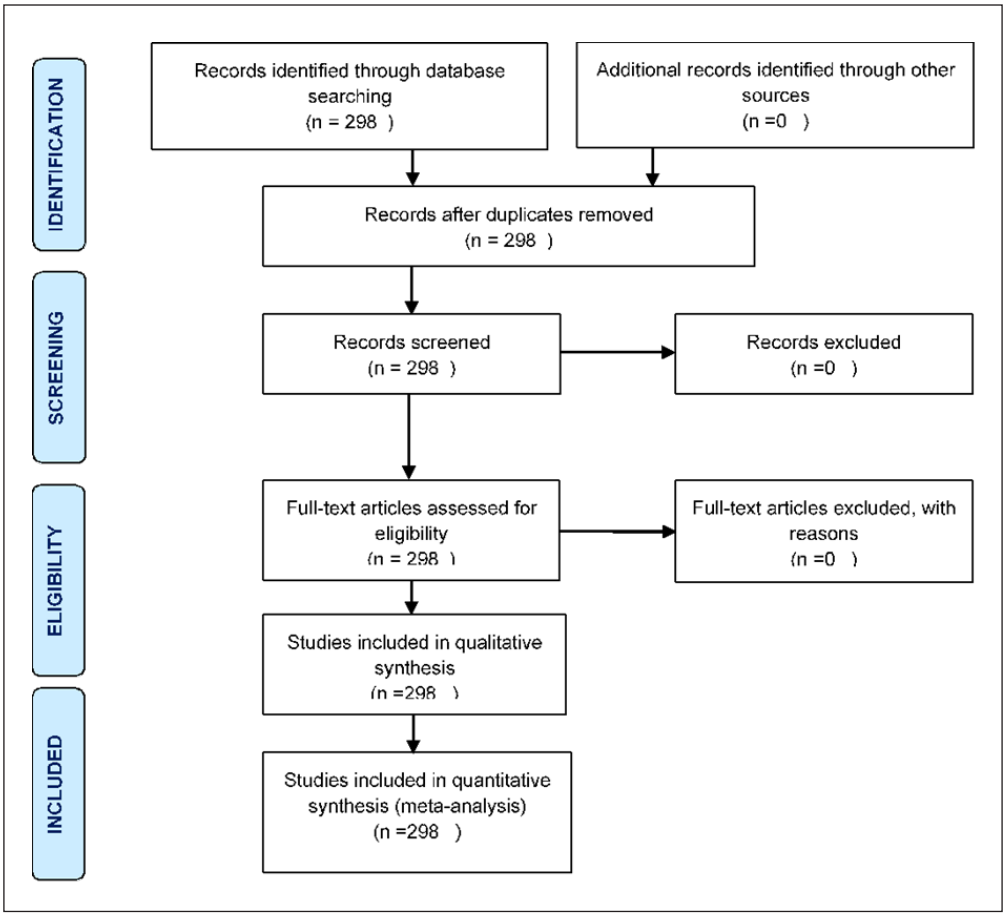

Figure 1. PRISMA (Preferred reporting items for systematic reviews and meta-analyses) flow diagramme
Source: Moher et al. (2009)

RESULTS

The Results section presents the key findings of the study in a clear and structured manner, ~~often~~ using tables, figures, and descriptive summaries. It ~~should~~ include a detailed explanation of the data collected, statistical analyses (if applicable), and patterns or trends observed.

Document and Source Types

Table 1 shows the distribution of publication types in a dataset of 298 publications on sustainability awareness. Articles dominate at 67.11%, indicating a preference for comprehensive research formats. Conference papers account for 23.83%, highlighting active participation in academic forums for presenting findings and obtaining peer feedback. Book chapters make up 5.37%, usually providing detailed contributions to edited volumes. Reviews and conference reviews together comprise 3.69%, suggesting less emphasis on summarising existing literature. This distribution highlights a focus on original research through articles and conference presentations in sustainability awareness.

Table 1
Document type

Document Type	Total Publications (TP)	Percentage (%)
Article	200	67.11%
Conference Paper	71	23.83%
Book Chapter	16	5.37%
Review	6	2.01%
Conference Review	5	1.68%
Total	298	100.00

Source: Generated by the authors using BiblioMagika® (Ahmi, 2023)

Table 2 shows the distribution of source types in a dataset of 298 publications on sustainability awareness. Journals are the dominant source, making up 69.13% with 206

Table 2
Source type

Source Type	Total Publications (TP)	Percentage (%)
Journal	206	69.13%
Conference Proceeding	64	21.48%
Book Series	19	6.38%
Book	9	3.02%
Total	298	100.00

Source: Generated by the authors using BiblioMagika® (Ahmi, 2023)

publications. This highlights researchers' reliance on peer-reviewed platforms for credible findings. Conference proceedings are the second most common source, at 21.48% with 64 publications, reflecting active participation in academic conferences for sharing and refining research. Books and book series account for smaller shares, at 6.38% (19 publications) and 3.02% (9 publications), respectively. Although less frequent, these sources provide valuable detailed coverage and insights into sustainability awareness.

Year of Publications - Evolution of Published Studies

Table 3 details publication metrics for sustainability awareness research from 2019 to 2023, covering total publications (TP), non-cited publications (NCP), total citations (TC), citations per publication (C/P), citations per cited publication (C/CP), h-index (h), and g-index (g). In 2019, 32 publications amassed 964 citations, yielding 30.13 C/P and 32.13 C/CP. The h-index and g-index were 16 and 31, respectively, reflecting strong citation impact. Despite rising to 94 publications by 2023, total citations fell to 231, with C/P at 2.46 and C/CP at 4.36. The h-index and g-index declined to 7 and 11, respectively. This indicates a drop in citation impact, suggesting either a delay in recognition or reduced impact of more recent research compared to earlier years. These trends highlight the need to sustain or improve publication quality and impact as research volume grows.

Table 3
Year of publications

Year	TP	NCP	TC	C/P	C/CP	*h*	*g*
2019	32	30	964	30.13	32.13	16	31
2020	40	29	869	21.73	29.97	16	29
2021	60	47	650	10.83	13.83	15	22
2022	72	56	442	6.14	7.89	9	17
2023	94	53	231	2.46	4.36	7	11
Total	298	215	3156	10.59	14.68		

Notes. TP=total number of publications; NCP=number of cited publications; TC=total citations; C/P=average citations per publication; C/CP=average citations per cited publication; h=h-index; and g=g-index
Source: Generated by the authors using BiblioMagika® (Ahmi, 2023)

Multidisciplinary Focus and Key Themes in Sustainability Awareness Research

Table 4 details about analysis of sustainability awareness research shows that English is the dominant language, accounting for 98.66% of publications, which highlights its role in global scholarly communication. Research in this area is spread across various disciplines, with Social Sciences (46.98%) and Environmental Science (36.24%) leading the field, followed by Computer Science, Engineering, and Energy, reflecting the multidisciplinary

nature of sustainability challenges. The most active sources include *Sustainability (Switzerland)* and *Journal of Cleaner Production*, indicating strong research outputs. The most frequent keywords are "green accounting" (15.78%), "sustainability" (3.56%), and "environmental accounting", demonstrating a focus on environmental and social factors in business and sustainability practices.

Table 4
Year of publications

Aspect	Details
Dominant Language	English (98.66% of publications)
Leading Disciplines	- Social Sciences (46.98%) - Environmental Science (36.24%) - Computer Science - Engineering - Energy
Most Active Sources	- *Sustainability (Switzerland)* - *Journal of Cleaner Production*
Most Frequent Keywords	- "Green accounting" (15.78%) - "Sustainability" (3.56%) - "Environmental accounting"

Source: Generated by the authors using BiblioMagika® (Ahmi, 2023)

DISCUSSION

The bibliometric analysis of sustainability awareness research reveals a growing academic interest, as evidenced by the increasing number of publications over time, indicating global recognition of sustainability challenges and efforts to explore innovative solutions. The interdisciplinary nature of this research is evident, integrating perspectives from environmental science, economics, sociology, and management. Keyword co-occurrence analysis highlights sustainable development as the most dominant theme, alongside key topics such as environmental conservation and renewable energy. Another notable trend is the rising influence of corporate sustainability practices and corporate social responsibility (CSR), demonstrating how businesses are incorporating sustainability into their strategies. Citation analysis further underscores the significance of CSR research, showing that corporate policies increasingly align with environmental and social goals. These findings emphasise the expanding role of sustainability awareness across sectors, reinforcing the need for continued exploration of its impact on policy, business strategies, and societal behaviour.

CONCLUSION

The bibliometric analysis provides critical insights into the evolving landscape of sustainability awareness research, revealing key trends and emerging themes. The increasing prominence of interdisciplinary studies and corporate sustainability practices underscores the field's significance in addressing environmental, social, and economic challenges. High citation rates for research on sustainable development, environmental conservation, and CSR highlight the relevance of these topics. Future research should evaluate the effectiveness of sustainability policies and corporate initiatives in fostering long-term environmental and social responsibility. Addressing these gaps will enable scholars and practitioners to develop more effective strategies to advance sustainability awareness on a global scale.

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