Dissecting the Nexus of Consumer Adoption and Electric Cars:A Bibliometric Analysis

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Abstract: *A crucial technology for decreasing future emissions and energy use in the mobility sector is Electric Vehicles (EVs). One of the types of EVs that reduce car emissions and energy consumption, promoting a cleaner and more sustainable future for transportation, is Electric cars. Numerous advantages are offered by Electric cars to consumers, including lower operational costs, reduced maintenance needs, and a smaller environmental footprint. Other than advantages, knowing Consumer Adoption (CA) for promoting a successful transition to electric mobility is essential, thus benefiting the economy, the environment, and society as a whole. Also, the research on CA of electric cars is done via bibliometric analysis to serve as a comprehensive overview of the current state of research and aid in strategic planning and informed decision-making. Here, the CA of electric cars is explored by this bibliometric review, synthesizing existing literature to identify key trends and themes in this evolving field. It is easier to provide information regarding the factors influencing consumer acceptance, including environmental concerns, economic incentives, technological advancements, and social influences by analyzing a comprehensive dataset of publications from various academic databases. Significant authors and influential publications are identified along with emerging themes, such as consumer behavior, policy implications, and market dynamics.*

Keywords**:** *Electric vehicles, Electric car, Consumer adoption, Bibliometric review, Co-citation analysis, Co-authorship analysis, and factor analysis.*

1. INTRODUCTION

In recent times, due to several factors, there has been an increase in the demand for EVs (Tu & Yang, 2019). Transportation accounted for 25% of all GHG emissions as of the energy sector, which was found in 2009 (Huang et al., 2015). The increasing demand for EVs is transforming the transportation industry, driving advancements in sustainable mobility solutions. An electric car is an example of an EV, which offers a greener alternative to traditional fuel-powered vehicles, contributing to environmental sustainability

(Mofolasayo, 2023). Vehicles that run entirely on electricity using an electric motor powered by rechargeable batteries are termed Electric cars. When analogized to traditional gasoline or diesel vehicles, electric cars subsidize suggestively to minimize greenhouse gas emissions. EVs are divided into three groups (Pfluegl et al., 2016). These include BEVs, FCHEVs, and HEVs. Extensive studies have been conducted to evaluate energy use and compare fuel types, including alternative fuel cell systems, which have produced promising results (Czuka et al., 2016). This reduces the demand for oil in the transportation industry (Günther et al., 2015). In the transportation industry, electric cars minimize the dependency on oil, fostering a shift towards cleaner energy sources (Nilsson & Nykvist, 2016). Thus, in automotive technology, a considerable leap forward is represented by electric cars, presenting a sustainable alternative to traditional vehicles. They aid in lowering greenhouse gas emissions along with contributing to cleaner air by minimizing reliance on fossil fuels (Chonsalasin et al., 2024). Electric cars are becoming more accessible along with practical for everyday use with advancements in battery technology as well as increasing charging infrastructure, marking a transformative shift in the transportation industry (Sivilevičius et al., 2024) (Garus et al., 2024). Government policies play a vital role in promoting electric car adoption by offering incentives and establishing regulations that support sustainable transportation (Zhang & Bai, 2017) (Schultis, 2021). Government legislation, the Tesla effect, declining battery costs, 5G rollouts, together with the Battery-as-a-Service model's introduction are included in the EV's primary drivers (Electric Car) (Perdikakis et al., 2015). Lack of infrastructure (that is, charging stations), poor consumer knowledge as well as perceptions, high upfront costs, pressure from oil companies and the automaker lobby, along with the COVID-19 pandemic are the main barriers to CA of EVs as per a recent Statista report (Spirk & Kepka, 2015) (Matas et al., 2017). The advantages of the CA of electric cars are elucidated in Figure 1.

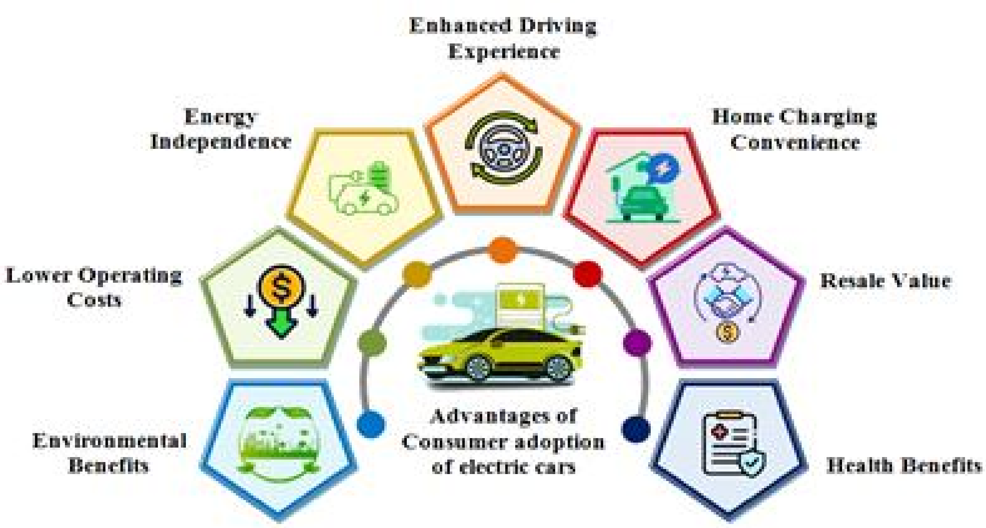

Figure 1: Advantages of consumer adoption of electric car

CA of electric cars is rapidly gaining momentum, driven by a confluence of environmental, economic, and technological factors (Schücking et al., 2017). More individuals are recognizing the significant benefits of transitioning from traditional gasoline vehicles to EVs as awareness of climate change and air pollution intensifies (Fetene et al., 2017) (Bruchon et al., 2024). Electric cars offer a cleaner, more sustainable alternative, producing zero tailpipe emissions and contributing to enhanced air quality, predominantly in urban areas. By reducing emissions, Electric cars significantly improve air quality, making them an attractive option for manufacturers committed to sustainability (Jenn, 2023). Consumers are increasingly presented with choices that fit their lifestyles and preferences as more manufacturers enter the market and a wider array of models becomes available. This shift not only reflects changing consumer attitudes but also signals a broader societal commitment to sustainable transportation solutions, positioning electric cars as a cornerstone of future mobility (Gehbauer et al., 2023).

After finishing the introduction section, the research questions and information source from the article selection strategy are explained in "***section 2***", the bibliometric analysis is illustrated in "***section 3***", the study summary is explained in "***section 4***", and lastly, the conclusion is described in "***section 5***".

2. RESEARCH QUESTIONS AND INFORMATION SOURCE FROM THE ARTICLE SELECTION STRATEGY

A bibliometric review is a systematic investigation of the literature that uses quantitative tools to detect patterns, trends, and linkages. It is critical to develop well-defined research questions that guide the analysis and offer a clear focus for the study when performing a bibliometric review. The information sources used in a bibliometric review typically come from academic databases and citation indexes. These databases contain metadata about scholarly articles, such as the title, author, publication date, journal, and citation information.

2.1. Research questions

In any research process, choosing RQs is an important stage. An excellent research question is targeted, relevant, and elicits interest. The developed RQs are categorized as B_1, B_2, B_3, B_4, and B_5..

B1:- What were the most occurred keywords in the prevalence of the consumer adoption of electric cars ?

B2:- Which journals had maximum publication of research articles on the relevant topic?

B3 :-Which countries had more researches on the aforementioned topic ?

B4 :- Which authors, and coauthors had maximum citation on the researches?

B5 :- What will be upcoming trends of electric cars adoption in Future ?

2.2. Article selection strategy

For the bibliometric study, the data are taken from the Scopus databases between 2014 and 2024. The data is acquired by scanning the Scopus database for "title, abstract, and keywords". Around 628 papers from 25 reputable journals are included in the analysis. The next step is to apply the exclusion criteria. An exclusion condition is that only Scopus database indexes are utilized, and the majority of research publications focus on the analysis during the recent ten years.

Here, to choose an article, the Prisma technique is employed. PRISMA is developed by systematic reviewers to give transparent reporting on the process of conducting a review-based study. PRISMA requires authors to present an accurate and full summary of why the review is conducted, what is done, and what is discovered. It displays the number of identified records, the data that is included and excluded, and the reasons for exclusions. The Prisma framework is depicted in Figure 3.

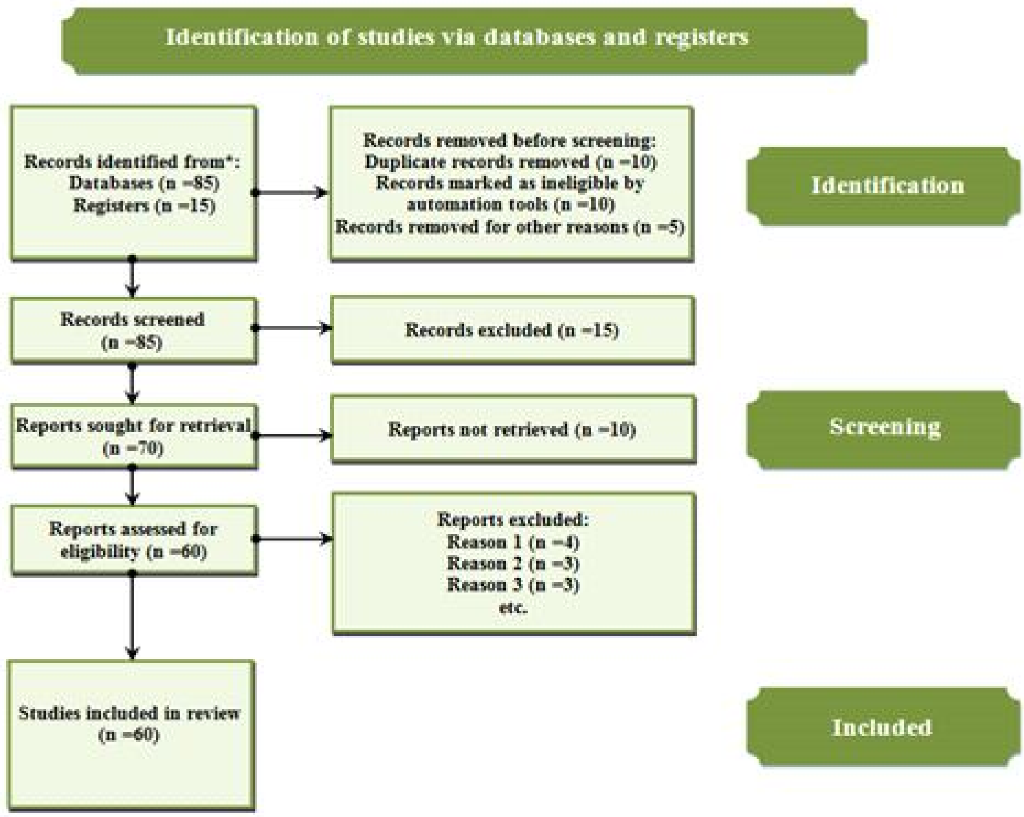

Figure 3: PRISMA framework

3. BIBLIOMETRIC ANALYSIS ON CONSUMER ADOPTION OF ELECTRIC CARS

A quantitative tool for assessing and analyzing academic publications is the Bibliometric analysis. It is the use of statistical and mathematical approaches to evaluate different elements of published works, such as their influence, trends, and patterns. A bibliometric assessment can assist in identifying the most active research topics within the subject of CA of EVs. This can also help researchers to find prospective topics for future investigation. By using normal data analysis, the CA of electric cars is done. In the regular data analysis, bibliographic measures like journals, countries, authors, scientific papers, and publishers are used. Bibliographic research uses citations to identify reputed articles, researchers, and journals. The important analysis includes initial search, exploratory data, geographic location, network analysis, cocitation analysis, and cluster analysis.

3.1. Keyword analysis

As keyword analysis helps to identify the key themes, concepts, and terminology used in the literature, it is a crucial component of bibliometric reviews. It also provides perceptions of the evolution of the research field and the relationships between different concepts. "Electric car", "EV", "CA", "Battery Source", and "Power electronics" are the common keywords utilized in this research to search the articles. 25 reputed journals are refined by analyzing the entire journals, which are most fit for this kind of study and bibliometric research.

3.2. Analysis of journals with the metrics

For researching the CA of electric car ideas, there are various journals accessible. 25 journals are employed, along with their metrics, including Impact Factor (IF), Scimago Journal Rank (SJR), Source Normalized Impact per Paper (SNIP), Citation Score (CS), Country, Publication Frequency (PF), and publisher in the bibliometric study. So, the examination of articles using various measures for researching the CA of electric cars is summarized in Table 1.

Table 1: Examination of articles using various measures for researching the CA of electric cars

Journals' name	IF	SJR	CS	SNIP	Publisher	Country	PF
Renewable and Sustainable Energy Reviews	18.47	3.59	28.5	4.54	Elsevier Ltd	UK	Semi-monthly
Energy Economics	14.67	3.55	11.3	2.35	Elsevier B.V.	Netherlands	Bi-monthly
Journal of Business Research	13.52	3.12	11.2	3.09	Elsevier Inc	United States	Monthly
Sustainable Production and Consumption	13.26	2.35	8.1	2.01	Elsevier B.V.	Netherlands	Quarterly
Sustainable Cities and Society	12.07	2.54	14.4	2.54	Elsevier B.V.	Netherlands	Bi-monthly
Applied Energy	11.46	2.82	20.4	2.65	Elsevier B.V.	UK	Semi-monthly
Journal of Cleaner Production	11.08	2.05	20.4	2.44	Elsevier Ltd	UK	Fortnightly
Environmental science & technology	10.65	3.51	14.8	2.05	American Chemical Society	United States	Semi-monthly

Energy Conversion and Management	10.51	2.55	18	2.37	Elsevier Ltd	UK	Semi-monthly
Energy Policy	10.49	2.38	12.4	2.03	Elsevier B.V.	UK	Monthly
Green Energy and Intelligent Transportation	10.44	1.4	6.4	2.02	Elsevier B.V.	Netherlands	Bi-monthly
Smart Cities	10.13	1.326	5	1	Multidisciplinary Digital Publishing Institute (MDPI)	Switzerland	Quarterly
Science of The Total Environment	9.44	1.99	14.1	2.18	Elsevier B.V.	Netherlands	Semi-monthly
Journal of Environmental Management	9.32	1.77	11.4	1.91	Academic Press	US	Semi-monthly
Transportation Research Part D: Transport and Environment	7.3	2.32	10.5	2.11	Elsevier Ltd	UK	Bi-monthly
Environment, Development, and Sustainability	6.09	0.88	4.4	1.35	Springer Netherlands	Netherlands	Monthly

The mentioned journals are from various nations, including the United Kingdom (UK), the United States (US), the Netherlands, and Switzerland, which is depicted in Table 1. The journals in descending order of IF rating priority are depicted in Table 1. Thus, the Renewable and Sustainable Energy Reviews show the highest IF of 18.47, with SJR and SNIP values of 3.59 and 4.54, respectively. Elsevier BV, Springer Netherlands, MDPI, and others are encompassed in the publishers of the various journals. Energy Economics comes in second with an IF of 14.67, SJR rating of 3.55, and SNIP of 2.35. Procedia Engineering appeared as the 25th journal (last in order) with an IF of 0.

3.3. Exploratory data highlights

Exploratory data highlights can provide valuable insights into the research landscape in a bibliometric review. The research can effectively summarize key findings and deliver the research landscape's comprehensive overview by focusing on these exploratory data highlights. The publication count column is shown in tables as 2014 to 2016, 2017 to 2019, and 2020 to 2024. In Table 2, the number of publication paper counts for CA of electric car research between the years 2014 to 2024 is tabulated.

Table 2: Number of publication paper counts for CA of electric car research between the years 2014 to 2024

Journals' Name	*2014 to 2016*	*2017 to 2019*	*2020 to 2022*	*2023 & 2024*
Journal of Cleaner Production	16	20	11	4
Sustainability	5	11	26	14
Journal of Business Research	0	0	5	5
Energy Economics	3	5	3	1
Energy Conversion and Management	16	13	12	5
Environment, Development, and Sustainability	1	1	2	0
Energy for Sustainable Development	0	1	2	4
Sustainable Production and Consumption	0	0	13	6
Applied Energy	21	12	11	5
Transportation Research Procedia	12	7	4	3
Environmental and Resource Economics	1	2	3	1
World EV Journal	2	4	5	8
Energies	2	4	14	18
Environmental science & technology	7	8	2	1
Clean Technologies and Environmental Policy	4	4	4	2
Journal of Environmental Management	1	0	2	2
Procedia engineering	5	1	0	0

Procedia engineering	5	1	0	0
Mitigation and Adaptation Strategies for Global Change	1	1	2	0
Green Energy and Intelligent Transportation	0	0	11	23
Sustainable Cities and Society	1	12	10	7

The published journals on the basis of the CA of EVs from 2014 to 2024 are described in Table 2. Table 2 shows that "Energy Policy" published more publications from 2014 to 2024, with a total of 57 published articles, when compared to the other journals. "Sustainability" produced the second-highest number of papers between 2014 and 2024. Also, in terms of published papers with 51, the "Journal of Cleaner Production" ranked third. The journals "Environment, Development, and Sustainability" and "Mitigation and Adaptation Strategies for Global Change" published fewer papers, totaling four. The reference articles used in the analysis are given in the references section. For instance, references [(Roselli & Sasso, 2016) to (Marques et al., 2016)] are published in a variety of publications, including energy conversion and management, clean technologies and environmental policy, green energy and intelligent transportation, and others. The references [(Roselli & Sasso, 2016) to (Marques et al., 2016)] are listed in the reference section. Likewise, in a variety of periodicals, including Journal of Cleaner Production, Renewable as well as Sustainable Energy Reviews, Energy Conversion as well as Management, etc., references [(Shareef et al., 2016)– (Thomas et al., 2018)] are published. In the reference section, the references are also listed.

3.4. Geographic location analysis

As Geographic location can give information about the distribution of research activity and potential biases in the literature, it is an essential consideration in bibliometric evaluations. Researchers may discover places with high levels of research activity, uncover potential biases, and assess the study's worldwide reach by examining the geographic sources of papers. The geographical analysis is used to determine the geographical distribution of the writers by nation for the CA of electric car research between 2014 and 2024. Generally, geographic distribution is described as a map chart that uses shaded areas to show how data is spread across different regions. Darker areas imply a higher concentration of values. The geographical distribution of the list of authors' countries based on the CA of electric car research is elucidated in Figure 4. The list of journal countries based on the CA of electric car research is explained in Figure 5.

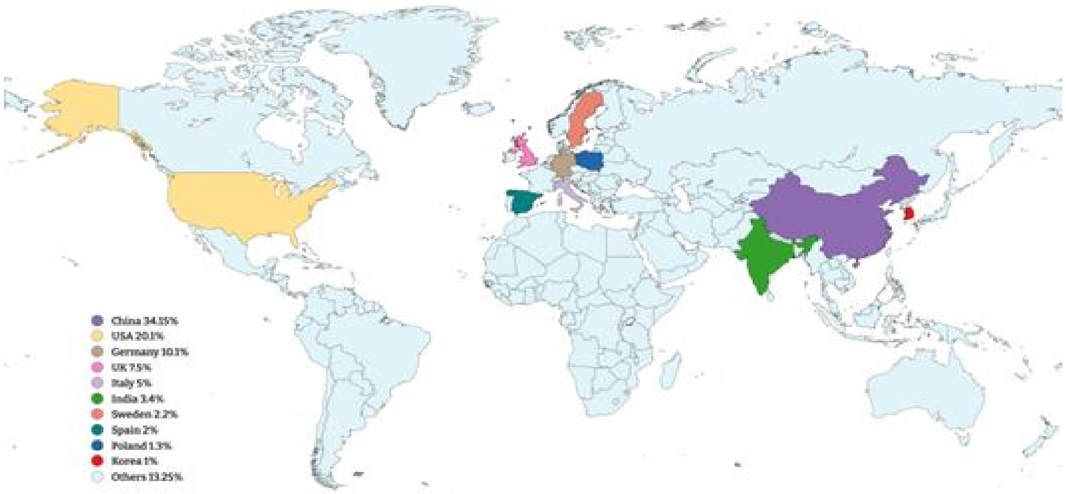

Figure 4: Geographical distribution of the list of authors' countries based on the consumer adoption of electric car research

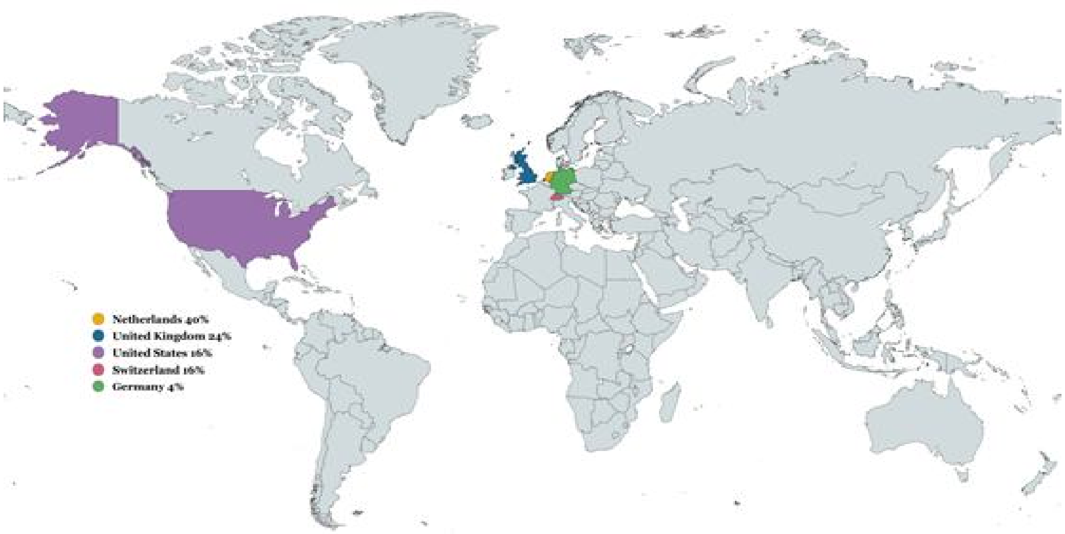

Figure 5: List of journal countries based on the consumer adoption of electric car research

United States, United Kingdom, Australia, Germany, China, India, Germany, South Korea, etc., are included in the author's nations. Figure 5 shows that more writers have contributed to studies on EVs' consumer acceptance. About 34.1% of the writers from China have conducted a study on EV research's CA. The United States is the second country with a higher percentage (20.1%) of writers participating in the analysis. Some of the journal countries are the Netherlands, UK, USA, etc. It is noted from Figure 5 that from different countries, journal publications have been done. Remarkably, the country Netherlands holds the highest percentage of 40 % for having a journal based on the electric car research's CA. The UK holds the 2nd position with a higher % of 24. India holds the 4th position with the % of 4.2.

3.4. Network analysis

It is a method used in bibliometric analysis to examine the relationships between research and authors in a given field. The study focuses primarily on the co-occurrence of "keywords" in the retrieved papers. The writers of scientific publications carefully pick the keywords that reflect the article's core topic and research emphasis. Nodes represent the entities that are studied in the analysis. The relationships between nodes are indicated by edges. But, here, to display the network analysis graphs, VOS viewers are used. The network analysis diagram centered on keywords is illustrated in Figure 6.

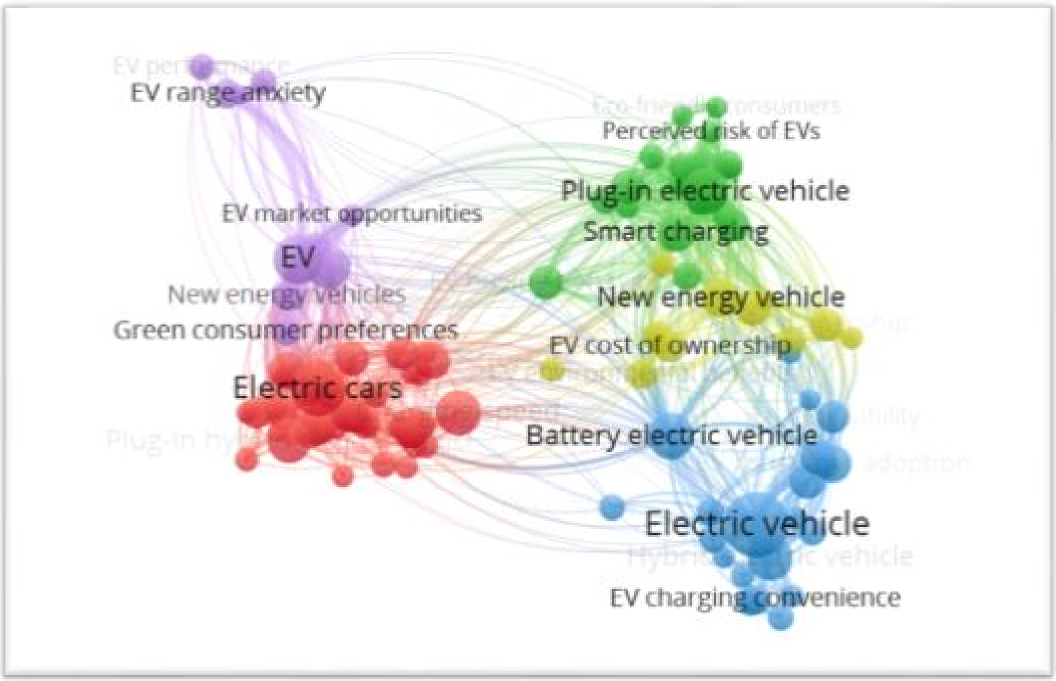

Figure 6: Network analysis diagram based on keywords

The author combination used in the research is depicted in Figure 6. The research analysis, which is comparable to a keyword analysis, employs a total of five colors. The author's threshold value requires a minimum number of papers, which is manually adjusted to 3 and resulted in 40.

3.4.1. Co-citation analysis

It examines how often two or more works are cited together in subsequent research. This method helps to identify relationships among authors, theories, and key concepts in a specific field, providing insights into the structure and development of that field. To group articles that are frequently cited together, clustering techniques (like network analysis) are used. Tools like VOS viewer can help visualize the co-citation network, making it easier to identify influential works and emerging research trends. The co-citation analysis centered on the journals' varieties for the research of CA of electric cars is elucidated in Figure 7.

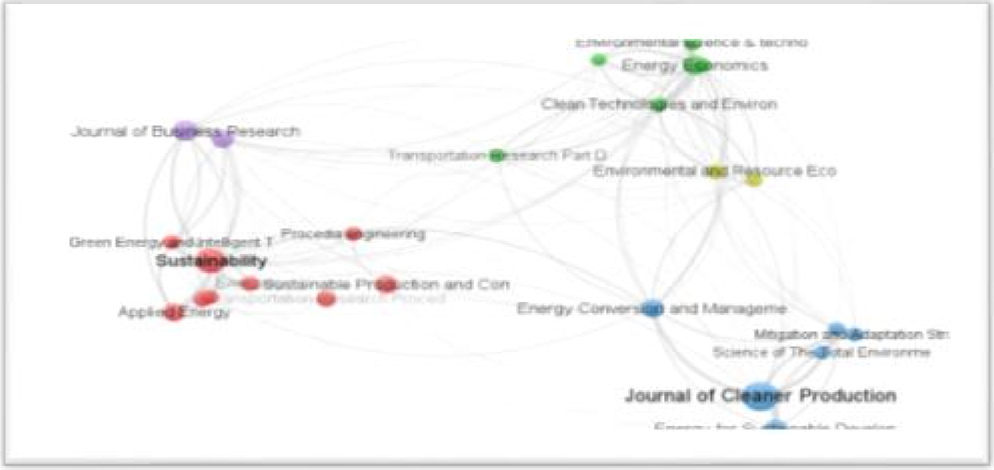

Figure 7: Co-citation analysis based on the journals' varieties for the research of consumer adoption of electric cars

Conducting a co-citation analysis based on journal varieties for research on the CA of electric cars involves examining how different journals contribute to the literature and how often articles from these journals are cited together, which is given in Figure 7. Co-citation analysis using several journal types can indicate the intellectual landscape surrounding consumer uptake of electric cars. It is essential to know which publications and themes dominate the literature to allow academics and practitioners to better traverse the area and find new routes for investigation.

Co-authorship Analysis

It is a technique used to study the collaborative relationships among authors in a particular field of research. This analysis can provide insights into the dynamics of research collaboration, identify influential authors, and reveal patterns of knowledge dissemination in the context of CA of electric cars. The VoS viewer tool is used in this analysis similar to the previous analysis. The co-authorship analysis for the authors of the CA of the electric car concept is explained in Figure 8 .

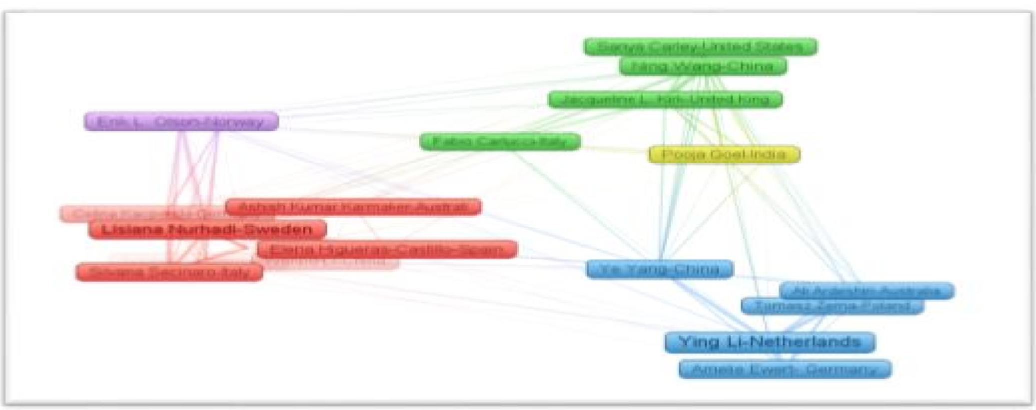

Figure 8: Co-authorship analysis for the authors of the consumer adoption of electric car concept

The co-authors have been explained clearly in the analysis with 8 different colors, which is depicted in the above figure. It is feasible to gain more important insights into the collaborative dynamics of this study topic by doing a co-authorship analysis on the authors involved in consumer uptake of EVs. This study can assist in uncovering significant actors, developing trends, and collaboration networks, eventually improving the understanding of how research in this discipline is created and distributed.

3.4. Year-wise publication graph analysis

In a bibliometric review, year-wise publication graph analysis involves examining the number of academic publications over specific years to identify trends, patterns, and the overall growth of research output in a given field. In bibliometric reviews, as Year-by-year publication graph analysis provides helpful information about how research activity changes over time, it is an important technique. The year-wise publication graph for the research on electric cars' CA is explained in Figure 9.

Figure 9: Year-wise publication graph for the research on consumer adoption of electric cars

68 articles were published in the analysis from 2024 and 2023, which is depicted is the above figure. 56 were the 2nd most number of articles published in 2018 and 2020. The less number of articles were published in the year 2015.

3.4. Analysis based on publication citations

An important aspect of bibliometric reviews is analysing publications based on citations, providing insights into the impact along with influence of research within a field. Authors' credentials include education, abilities, and/or biographical facts that qualify them to write or talk about a given topic. This section features the top 10 writers from 628 publications. The top 10 writers and their citations are described in Table 3.

Table 3: Top 10 writers and their citations

Authors' name	***Titles***	***Years***	***Findings***	***Citations***	***Journals***
(Hannan et al., 2017)	A review of lithium-ion battery state of charge estimation and management system in EV applications: Challenges along with recommendations	2017	The investigation identified many obstacles and recommendations for developing BMS and estimating SOC in next-generation EV applications.	1872	Renewable and Sustainable Energy Review
(Sierzchula et al., 2014)	The influence of financial incentives together with other socio-economic factors on EV adoption	2014	Charging infrastructure was shown to be the most significant predictor of electric car uptake.	1580	Energy Policy
(Rezvani et al., 2015)	Advances in consumer EV adoption research: A review and research agenda	2015	Consumers might regard EVs as innovative, resulting in increased rivalry from ICEs with some sort of inventive engines and other technology.	1385	Transportation Research Part I
(Vanitha et al., 2024)	A Review on EVs: Technologies and Challenges	2021	Higher capacity batteries would enable faster and more powerful charging techniques, including improved wireless charging technologies.	1070	Smart cities
(Wang et al., 2016)	A critical review of thermal management models and solutions of lithium-ion batteries for the development of pure EVs	2016	To reduce battery thermal effects, existing BTMs were optimized and technologies were explored. Prioritizing BTMs could enhance temperature uniformity.	1000	Renewable and Sustainable Energy Review
(Hardman et al., 2018)	A review of consumer preferences for and interactions with electric vehicle charging infrastructure	2018	Research indicated that customers needed easier access to PEV charging; also, that charging was not free at home, work, or else public places.	727	Transportation Research Part I
(Sabri et al., 2016)	A review on hybrid EVs architecture and energy management strategies	2016	Findings were evaluated in this paper, causing Hypothetical TtR HEV materialization.	623	Renewable as well as Sustainable Energy Review

(Mersky et al., 2016)	Effectiveness of incentives on EV adoption in Norway	2016	Short-range cars exhibited higher income as well as unemployment sensitivity when analogized to long-range vehicles.	594	Transportation Research Part D Transport as well as Environment
(Li et al., 2017)	A review of factors influencing consumer intentions to adopt battery-electric vehicles	2017	Results suggested that the position of symbolic attributes meant for adopting BEVs might not be well-acknowledged by consumers.	572	Renewable and Sustainable Energy Review
(Tran et al., 2020)	Thorough state-of-the-art analysis of electric and hybrid vehicle powertrains: Topologies and integrated energy management strategies	2019	Various powertrain topologies and EMSs were used to reduce fuel consumption along with emissions, depending on their use.	511	Renewable together with Sustainable Energy Review

Hannan had the highest number of citations (1872) in the year 2017 and belonged to the Renewable and Sustainable Energy Reviews among the mentioned 10 authors, which is depicted in Table 3. William attained the 2nd position with the citations of 1580, and this author belonged to the Energy policy. Zeinab achieved 3rd position with citations of 1385 and belonged to the Journal of Transportation Research Part D. The least cited (511) author was Dai out of these 10 authors.

3.8 Factors analysis

Keywords are a distillation of a text's main concepts. Keywords that appear often may indicate current subjects in a field of research. To diminish dimensionality as well as cluster terms to identify research hotspots related to CA of electric cars, this study uses a PCA. Table 4 explains the Keywords co-occurrence matrix D**.**

Table 4: Keywords co-occurrence matrix D

Keywords	*1*	*2*	*3*	*4*	*5*	*6*
Electric vehicle	0	61	8	31	18	28
Electric cars	61	0	7	11	8	11
EV	8	7	0	0	4	0
Plug-in electric vehicle	31	11	0	0	4	2
Battery electric vehicle	18	8	5	4	1	2
Consumer adoption	28	13	0	2	3	0

The relation between a paper along with a factor and how much of the paper belongs to the set is depicted by Factor loadings. The factor labels along with the number of keywords are elucidated in Table 5.

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Table 5: Factor labels and number of keywords

Factors	***Labels***	***Number of keywords***
Factor 1	Electric car	65
Factor 2	Electric vehicle	20
Factor 3	Consumer adoption	19

The research analyzes each group of terms for common motifs to understand the three elements. The authors analyze the findings and identify three study hotspots, such as Electric cars (Factor 1), EVs (Factor 2), and Fast charging (Factor 3). Thus, three current research hotspots were indicated by the three factors listed above. Factor 1 examines electric cars, Factor 2 examines EVs, and Factor 3 focuses on CA. The clustering results are elucidated in Table 6.

Table 6: Clustering results

Factor 1	***Factor 2***	***Factor 3***
Electric vehicles	Charging infrastructure	Consumer attitudes
Efficiency	Battery technology	Consumer perception
Performance	Cost	Purchase intention

3. Summary of the Study

The bibliometric review for the current objective presents the available research's detailed study on the factors that influence consumer acceptance of electric cars (EVs). The study identifies major trends, themes, and influential writers on the subject by carefully reviewing a wide range of academic papers. The data shows a substantial rise in research output, notably over the last decade, indicating a greater interest in the transition to sustainable transportation. Environmental concerns, economic incentives, technology breakthroughs, and social influences are examined as important variables that influence consumer acceptance. RQs are found to be more significant in the bibliometric analysis as mentioned earlier. The developed RQs are categorized into 5 lists, namely B1, B2, B3, and B4.

Keywords are used to search the publications for the bibliometric research (B1): This question answer was clearly explained in the analysis of keywords in Section 3.1.

Count of journals that were taken into consideration for the Bibliometric analysis (B): Section 3.2 described the bibliometric study of 25 journals.

Research articles taken from the journals (C): The number of papers was 628, and it was mentioned between the years 2014 to 2024.

Higher citation author in the bibliometric analysis (D): Hannan author had the highest number of citations (2206) in section 3.10.

Thus, for researchers, policymakers, and manufacturers who seek to foster greater acceptance of EVs in the marketplace, this bibliometric review serves as a foundational reference. Ongoing research will be essential to adapt to changing consumer needs and preferences as the market for electric cars continues to grow.

5. Conclusion

This bibliometric study of the CA of EVs (electric cars) illustrated the rising corpus of research relevant to understanding the fundamentals that influence this transition to sustainable transportation. A large rise in scholarly production was depicted by data over the last decade, indicating a growing interest in the environmental, economic, and social consequences of electric car adoption. Consumer attitudes, adoption hurdles, and the role of policy and infrastructure in determining consumer behaviour are the key topics explained. The limitation was identified in this bibliometric review by analyzing the different kinds of research articles. This kind of method did not fully capture the qualitative aspects of CA, such as nuanced consumer attitudes or cultural influences that were better explored through qualitative research methods while bibliometric methods provided quantitative insights. Thus, this limitation should be considered by future researchers and try to cover the full qualitative aspects of CA. Lastly, this analysis explained the need for personalized tactics for raising consumer awareness and overcoming problems to adoption. Stakeholders might establish successful legislation and marketing activities to encourage EVs by connecting lessons from current literature, thereby expediting the transition to a more sustainable transportation system.

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