environments

Correction

Correction: Garcilazo-Lopez et al. The Circular Economy as an Environmental Mitigation Strategy: Systematic and Bibliometric Analysis of Global Trends and Cross-Sectoral Approaches. *Environments* 2026, *13*, 48

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Error in Figure 1

In the original publication [1], there was a mistake in Figure 1 as published. The PRISMA 2020 flow diagram did not fully comply with the official PRISMA 2020 Statement guidelines for reporting the systematic selection process. Specifically, the published Figure 1 erroneously reported 62 articles as the final included corpus. This number was incorrect and resulted from a version control error during the original manuscript preparation: an earlier iteration of the PRISMA diagram, reflecting a preliminary screening stage before the final eligibility assessment, was inadvertently included in the submitted manuscript. The correct number of articles included in the systematic review has always been 51, as consistently reported throughout the manuscript text, including: the Abstract ("51 peer-reviewed articles published between 2018 and 2024"), Section 2.2/Table 1 (final column explicitly reports 51 articles after cross-database deduplication), Section 2.3 ("This exhaustive search yielded a final corpus of 51 articles"), Section 3/Results ("bibliometric and systematic content analysis of 51 peer-reviewed articles"), Table 5 (lists exactly 51 studies), and Section 5/Conclusions ("This systematic, bibliometric review of 51 peer-reviewed articles"). The number 62 appeared exclusively in the PRISMA flow diagram figure and was never reflected in any textual, tabular, or analytical element of the article. Therefore, the change from 62 to 51 in the corrected Figure 1 is not a reduction of the corpus, but rather the correction of an erroneous figure to match the actual dataset that was analyzed and reported throughout the manuscript. The corrected Figure 1 appears below.

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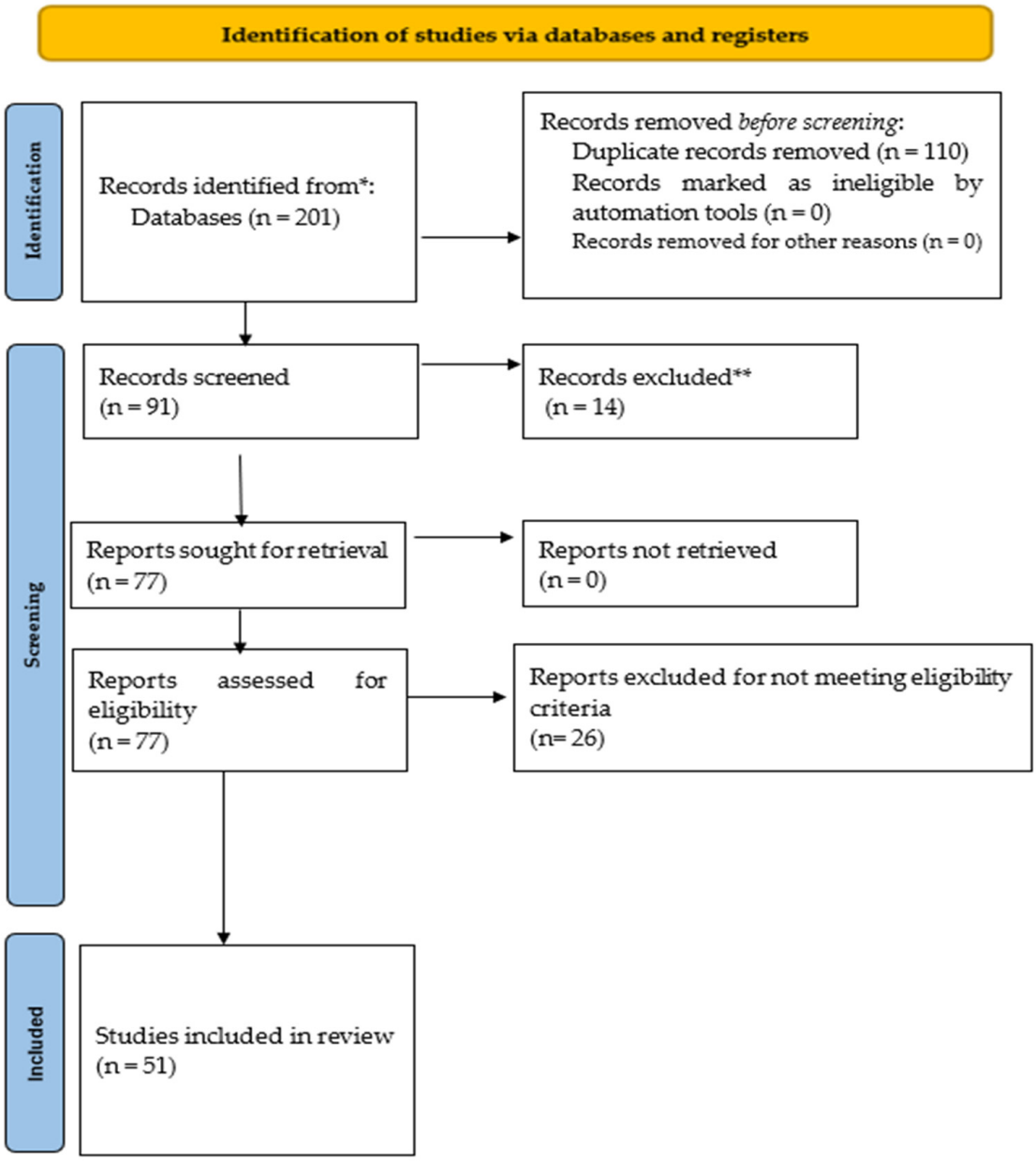

Figure 1. PRISMA 2020 flow diagram illustrating the systematic article selection process. Note. * Scopus, Web of Science, ScienceDirect, Springer Link, and Wiley Online Library. ** Excluded based on title and abstract screening. The diagram details the process of identification and selection of relevant studies from five databases and 201 articles, which underwent a filtering process until 51 studies were finally included in the systematic review.

Error in Figure 5

In the original publication, there was a mistake in Figure 5 as published. The figure contained overlapping parts due to a formatting/image-rendering error that affected the visual presentation. Additionally, Figure 5 presents a two-dimensional clustering scatter plot derived from a hierarchical clustering analysis of title similarity (Section 3.4). Not all articles in the corpus appear in this visualization because the clustering algorithm applies a minimum similarity threshold (cosine similarity ≥ 0.44, as stated in Section 3.4) to determine cluster membership. Articles with highly distinctive titles that do not reach this threshold are not assigned to any cluster and are, therefore, excluded from the scatter plot. In the published version, the figure displayed 59 data points because it was linked to the erroneous corpus count of 62 (59 of 62 articles met the similarity threshold; 3 were

excluded). In the corrected version, the figure displays 48 data points because the correct corpus is 51 articles (48 of 51 meet the similarity threshold; 3 are excluded). The proportion of excluded articles is consistent in both versions (approximately 5–6% of the corpus), confirming that the clustering methodology was applied identically. The corrected Figure 5 appears below.

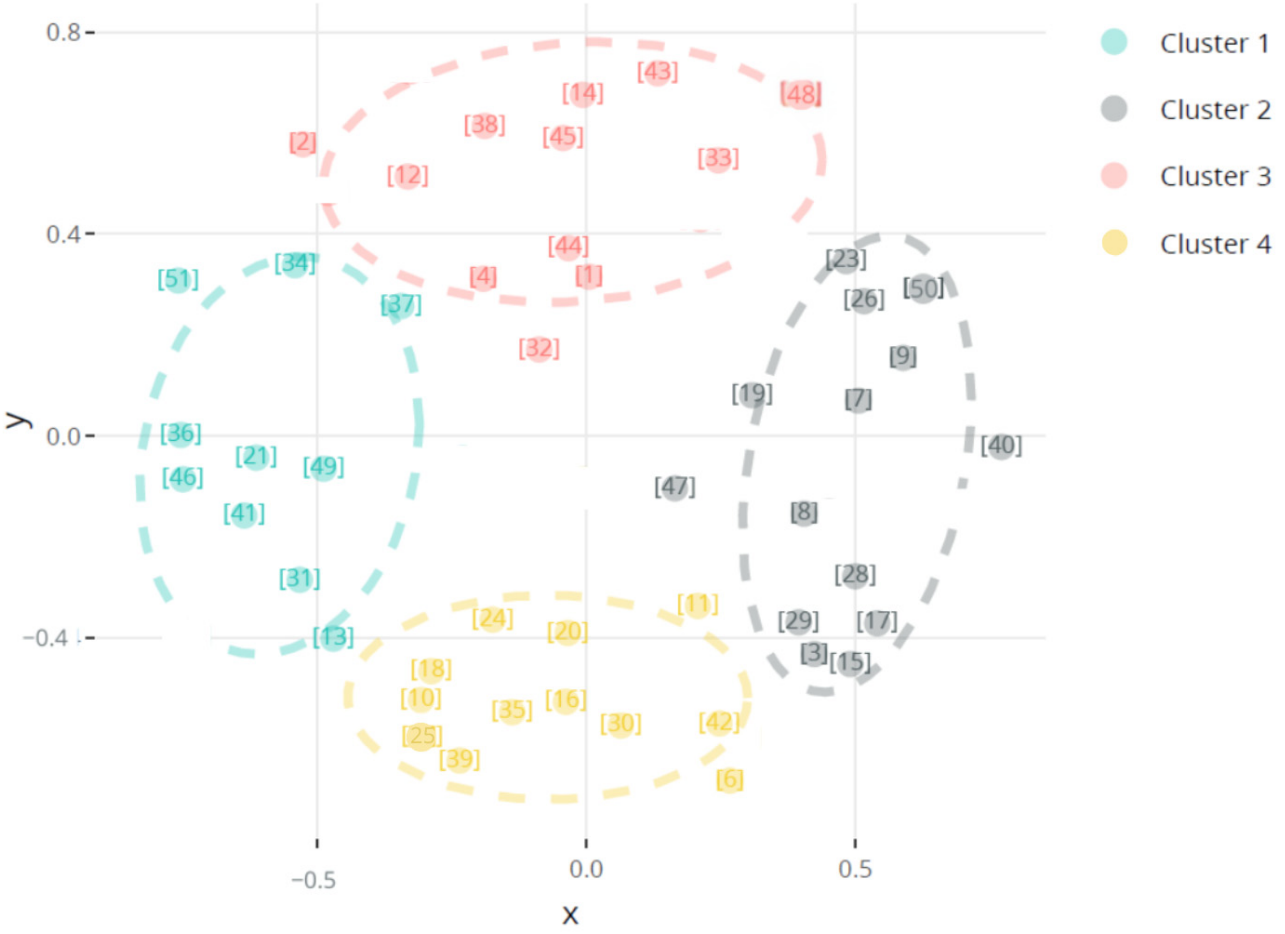

Figure 5. Visualization of the dendrogram of the hierarchical clustering based on similarity of titles. Four distinct groups are observed, differentiated by colors: green (integration of sustainability and design), gray (organizational dimensions), red (waste valorization applications) and yellow (methodological contributions). The height of the clusters indicates the distance of similarity, with shorter heights representing greater thematic similarity within the clusters. Numbers in brackets refer to the corresponding references of the 51 studies included in this systematic review [1–51].

Error in Figure 6

In the original publication, there was a mistake in Figure 6 as published. The figure had low image resolution. Additionally, one emotion label was refined for greater terminological precision: the published version used the label "blame", while the corrected version uses "guilt" to more accurately represent the NLP lexicon output used in the sentiment analysis (Section 3.5). Both terms belong to the same emotional category within established sentiment analysis frameworks (negative valence, attribution-oriented emotion). The underlying data values, frequency counts, proportional distributions, and all analytical conclusions remain identical. The corrected Figure 6 appears below.

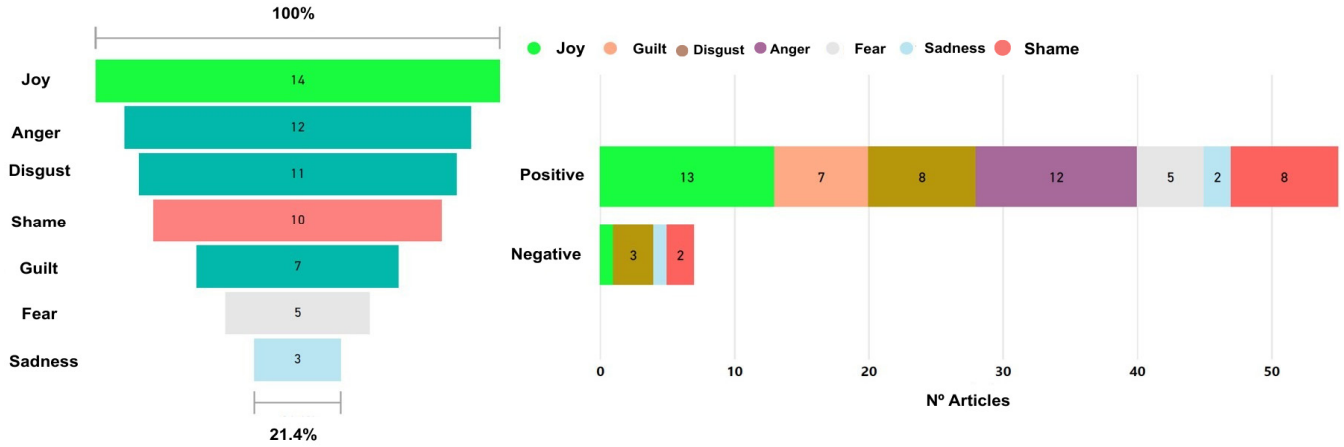

Figure 6. Distribution of emotional content in research summaries. The left panel shows the frequency of specific emotions (joy, anger, disgust, shame, guilt, fear, sadness) identified using sentiment analysis algorithms. The right panel aggregates emotions by valence polarity (positive vs. negative), revealing the predominance of positive framing (58%) along with substantial negative emotional content (42%). This emotional architecture reflects a strategic rhetorical positioning that balances the seriousness of the problem with the optimism of the solution. Note: The first figure shows the analysis of the summaries of the articles reviewed, highlighting emotions such as joy, anger, disgust, shame, guilt, fear and sadness; and the second figure breaks down the emotions according to their positive or negative polarity, revealing the predominant emotional tone of the writing.

Error in Table 5

In the original publication, there was a mistake in Table 5 as published. The references were formatted in APA 7th edition style instead of IEEE style, which is the required citation format for this journal. Additionally, the published Table 5, which was linked to the erroneous PRISMA count of 62 articles, contained entries that did not correspond to the actual analyzed corpus. The corrected Table 5 lists the 51 studies that constitute the analyzed corpus, formatted in IEEE style consistent with the journal requirements, with standardized columns (Ref., Authors, Year, Title, Journal/Source, Country, Main Theme) to provide a comprehensive characterization of each included study, consistent with PRISMA 2020 reporting guidelines. The scientific conclusions are unaffected, as all analyses reported in the manuscript were always based on these 51 studies. The additional last paragraph in Section 3.4 and corrected Table 5 appears below.

Table 5 presents the complete characteristics of the 51 studies included in this systematic review, detailing authorship, publication year, country, journal source, and main research theme.

Table 5. Characteristics of the 51 studies included in the systematic review.

Ref.	Authors	Year	Title	Journal/Source	Country	Main Theme
[1]	IPCC	2023	Climate Change 2023: Synthesis Report. Contribution of Working Groups I, II, and III to the Sixth Assessment Report	IPCC	International	Climate change and environmental crisis
[2]	Ellen MacArthur Foundation	2023	The Global Commitment 2023	Ellen MacArthur Foundation	International	Global circular economy commitment

Table 5. *Cont.*

Ref.	Authors	Year	Title	Journal/Source	Country	Main Theme
[3]	Geissdoerfer, M.; Savaget, P.; Bocken, N.M.P.; Hultink, E.J.	2017	The circular economy: A new sustainability paradigm?	Journal of Cleaner Production	Netherlands	Circular economy paradigm
[4]	Kirchherr, J.; Reike, D.; Hekkert, M.	2017	Conceptualizing the circular economy: Analysis of 114 definitions	Resources, Conservation and Recycling	Netherlands	CE conceptual definitions
[5]	Korhonen, J.; Nuur, C.; Feldmann, A.; Eshetu, S.	2018	Circular Economy as an Essentially Contested Concept	Journal of Cleaner Production	Finland/Sweden	Circular economy concept
[6]	Camana, D.; Manzardo, A.; Toniolo, S.; Gallo, F.; Scipioni, A.	2021	Environmental sustainability assessment of local waste management policies in Italy from a circular economy perspective	Sustainable Production and Consumption	Italy	Waste management and CE
[7]	Panchal, R.; Singh, A.; Diwan, H.	2021	Does circular economy performance lead to sustainable development? A systematic review	Journal of Environmental Management	India	CE and sustainable development
[8]	Gallo, F.; Manzardo, A.; Camana, D.; Fedele, A.; Scipioni, A.	2024	Integration of a circular economy metric with life cycle assessment: methodological proposal for comparing agri-food products	International Journal of Life Cycle Assessment	Italy	CE metrics and LCA
[9]	Schröder, P.; Bengtsson, M.; Cohen, M.; Dewick, P.; Hofstetter, J.; Sarkis, J.	2019	Internal degrowth: Aligning circular economy and robust sustainability narratives	Resources, Conservation and Recycling	UK/International	CE and SDGs
[10]	Benyus, J.	2002	Biomimicry: Innovation Inspired by Nature	William Morrow & Company	United States	Biomimicry
[11]	Braungart, M.; McDonough, W.	2009	Cradle to Cradle	Random House	United States/Germany	Cradle to cradle design
[12]	Stahel, W.R.	2010	Sustainability and performance economics	Palgrave Macmillan	Switzerland	Performance economy
[13]	Ellen MacArthur Foundation	2025	Introduction to the Circular Economy	Ellen MacArthur Foundation	International	CE conceptual framework
[14]	Potting, J.; Hekkert, M.P.; Worrell, E.; Hanemaaijer, A.	2017	Circular Economy: Measuring Innovation in the Product Chain	PBL Netherlands Assessment Agency	Netherlands	9R CE framework
[15]	Urbinati, A.; Chiaroni, D.; Chiesa, V.	2017	Toward a new taxonomy of circular economy business models	Journal of Cleaner Production	Italy	Circular business models
[16]	Rosa, P.; Sassanelli, C.; Urbinati, A.; Chiaroni, D.; Terzi, S.	2020	Assessing the relationships between circular economy and Industry 4.0: A systematic literature review	International Journal of Production Research	Italy	CE and Industry 4.0

Table 5. *Cont.*

Ref.	Authors	Year	Title	Journal/Source	Country	Main Theme
[17]	Beneduce, S.; De Luca, A.; Caputo, F.; Perfetto, D.	2023	A methodology to determine the design variables of a steel beam in order to minimize economic and environmental costs	Macromolecular Symposia	Italy	Sustainable manufacturing design
[18]	Caceres-Mendoza, C.; Santander-Tapia, P.; Cruz Sanchez, F.A.; Troussier, N.; Camargo, M.; Boudaoud, H.	2023	Life cycle assessment of filament production in distributed plastic recycling by additive manufacturing	Cleaner Waste Systems	France/Chile	Plastic recycling and additive manufacturing
[19]	Boer, D.; Segarra, M.; Fernández, A.I.; Vallès, M.; Mateu, C.; Cabeza, L.F.	2020	Approach for the analysis of TES technologies aiming at a circular economy: Case study of building-like cubicles	Renewable Energy	Spain	Thermal storage and CE
[20]	Fente, T.; Tsegaw, A.	2024	Environmental impact assessment of steel reinforcing bar manufacturing process from waste materials using the life cycle assessment method	Discover Applied Sciences	Ethiopia	Steel production from waste
[21]	Antunes, A.; Silvestre, J.; Costa, H.; Carmo, R.d.; Júlio, E.	2024	Reducing the environmental impact of the end-of-life of buildings as a function of interrelated demolition strategies, transport distances, and disposal scenarios	Journal of Construction Engineering	Portugal	Construction waste management
[22]	Koinig, G.; Grath, E.; Barretta, C.; Friedrich, K.; Vollprecht, D.; Oreski, G.	2022	Life cycle assessment of monolayer and multilayer film recycling processes: A comparison	Polymers	Austria	Plastic film recycling
[23]	Chusov, A.; Maslikov, V.; Badenko, V.; Zhazhkov, V.; Molodtsov, D.; Pavlushkina, Y.	2022	Evaluation of the biogas potential of a composite mixture from duckweed biomass	Sustainability	Russia	Biogas from biomass
[24]	Beausang, C.; McDonnell, K.; Murphy, F.	2020	Anaerobic digestion of poultry waste: A consequential life cycle assessment	Science of the Total Environment	Ireland	Anaerobic digestion of poultry waste
[25]	D'Imporzano, G.; Adani, F.	2023	Measuring the environmental impact of sewage sludge use in agriculture compared to the alternative of incineration	Science of the Total Environment	Italy	Sewage sludge in agriculture

Table 5. *Cont.*

Ref.	Authors	Year	Title	Journal/Source	Country	Main Theme
[26]	Berger, C.; Mattos, B.; Amico, S.C.; de Farias, J.; Coldebella, R.; Gatto, D.; Missio, A.	2022	Production of sustainable polymeric composites using grape pomace biomass	Biomass Conversion and Biorefinery	Brazil	Polymer composites from agricultural waste
[27]	Garcia, M.; Oliveira, M.R.; Neto, T.; Meira, A.	2021	Performance of mortars with PET	Journal of Material Cycles and Waste Management	Brazil	PET recycling in construction
[28]	Floridia, G.; Urso, S.; Belfiore, G.M.; Viccaro, M.	2022	Thermal and mechanical improvement of backfill mix for shallow geothermal systems by recycling carbon fiber waste	Energies	Italy	Carbon fiber waste recycling
[23]	Tarazona, N.; Machatschek, R.; Balcucho, J.; Castro-Mayorga, J.; Saldarriaga, J.; Lendlein, A.	2022	Opportunities and challenges for integrating the development of sustainable polymeric materials into an international (bio)circular economy concept	MRS Energy and Sustainability	Colombia/Germany	Sustainable polymeric materials
[30]	Amores-Salvadó, J.; Martin-de Castro, G.; Albertini, E.	2023	Leading by example, but above all, speaking by example: Going green for market stakeholder engagement	Corporate Social Responsibility and Environmental Management	Spain	Corporate environmental strategies
[31]	Averina, E.; Frishammar, J.; Parida, V.	2022	Assessing sustainability opportunities for circular business models	Business Strategy and the Environment	Sweden	Circular business models
[32]	Feng, C.; Gupta, P.	2022	Granger of foreign trade of cement products and their ecological impact in China	Mathematical Problems in Engineering	China	Trade and CE in cement
[33]	Heras-Saizarbitoria, I.; Boiral, O.; Testa, F.	2023	Circular economy at the firm level: An empirical study based on sustainability reports	Sustainable Development	Spain/Canada/Italy	Sustainability reports and CE
[34]	Saidani, M.; Yannou, B.; Leroy, Y.; Cluzel, F.; Kendall, A.	2019	A taxonomy of circular economy indicators	Journal of Cleaner Production	France/United States	CE indicators taxonomy
[35]	Binet, F.; Saunier, F.; Margni, M.	2021	Assessment of the mitigation potential of environmental impacts of circular economy strategies in an industrial sector and its value chain: A case study on the steel value chain in Quebec	Frontiers in Sustainability	Canada	CE in the steel value chain
[36]	van Nieuwenhuizen, K.E.; Friedericy, H.J.; van der Linden, S.; Jansen, F.W.; van der Eijk, A.C.	2024	User experience of the wearing comfort of reusable versus disposable surgical gowns and environmental perspectives	BJOG	Netherlands	Reusable vs. disposable surgical gowns

Table 5. *Cont.*

Ref.	Authors	Year	Title	Journal/Source	Country	Main Theme
[37]	Graedel, T.; Reck, B.; Ciacci, L.; Passarini, F.	2019	On the spatial dimension of the circular economy	Resources	United States/Italy	Spatial dimension of CE
[38]	Galarza-Maria, J.; Diaz de Junguitu, A.; Labaien, I.	2024	Social dimension of the circular economy: Impact categories through fuzzy Delphi method	Sustainable Development	Spain	Social dimension of CE
[39]	Page, M.J.; Moher, D.; Bossuyt, P.M.; et al.	2021	PRISMA 2020 Explanation and elaboration: Updated guidance and examples for systematic review reporting	BMJ	International	PRISMA methodology
[40]	Cobo, M.; Lopez-Herrera, A.G.; Herrera-Viedma, E.; Herrera, F.	2011	Software tools for scientific mapping: Review, analysis, and cooperative study across tools	Journal of the American Society for Information Science and Technology	Spain	Scientific mapping tools
[41]	Nußholz, J.	2018	A circular business model mapping tool for creating value from product life extension and closed material cycles	Journal of Cleaner Production	United Kingdom	Circular business model mapping tool
[42]	Schmidt, J.; Auer, M.; Moesslein, J.; Wendler, P.; Wiethoff, S.; Lang-Koetz, C.; Woidasky, J.	2021	Challenges and solutions for plastic packaging in a circular economy	Chemie Ingenieur Technik	Germany	Plastic packaging and CE
[43]	Marconi, M.; Menghi, R.; Papetti, A.; Pietroni, G.; Germani, M.	2021	An interactive resource value mapping tool to support inefficiency reduction in smart manufacturing processes	International Journal of Interactive Design and Manufacturing	Italy	Smart manufacturing and CE
[44]	Monsù, A.; De Medici, S.	2021	Top-down and bottom-up recycling in retrofitting and adaptive reuse of pre-existing buildings: Redesigning technological performances from an environmental perspective	Energies	Italy	Adaptive building reuse
[45]	Foteinis, S.; Chatzisymeon, E.; Litinas, A.; Tsoutsos, T.	2020	Biodiesel from used cooking oil: Life cycle assessment and comparison with first and third generation biofuels	Renewable Energy	Greece	Biodiesel from used cooking oil
[46]	Wouterszoon Jansen, B.; van Stijn, A.; Gruis, V.; van Bortel, G.	2020	A circular economy life cycle costing (CE-LCC) model for building components	Resources, Conservation and Recycling	Netherlands	CE-LCC model for construction
[47]	Zhang, Z.; Liao, W.	2024	Vertical perovskite solar cell envelope for circular economy: A case study using life cycle cost analysis in Europe	Journal of Cleaner Production	China/Europe	Perovskite solar cells and CE

Table 5. *Cont.*

Ref.	Authors	Year	Title	Journal/Source	Country	Main Theme
[48]	Cáceres-Cayllahua, E.; Aguirre-Landa, J.P.; Garro-Aburto, L.L.; Sandoval-Nizama, G.	2023	Entrepreneurial intention of university students in Lima-Peru	Revista de Ciencias Sociales	Peru	Entrepreneurial intention
[49]	Pomponi, F.; D'Amico, B.	2018	Carbon mitigation in the built environment: An input-output analysis of building materials and components in the UK	Procedia CIRP	United Kingdom	Carbon mitigation in construction
[50]	Gallardo-Vázquez, D.; Herrador-Alcaide, T.C.; de la Cruz Sánchez-Domínguez, J.	2024	Development of a scale for measuring corporate socially responsible entrepreneurship in sustainable management	Review of Managerial Science	Spain	Socially responsible entrepreneurship
[51]	Page, M.J.; McKenzie, J.E.; Bossuyt, P.M.; et al.	2021	The PRISMA 2020 statement: An updated guide to systematic review reporting	BMJ	International	PRISMA 2020 guidelines

Note. This table was prepared based on information from the systematic review article. Studies were selected following PRISMA 2020 guidelines, with searches in Scopus, Web of Science, ScienceDirect, Springer Link, and Wiley Online Library. 75.8% of publications correspond to Q1 journals according to Scimago Journal Rank.

The authors state that the scientific conclusions are unaffected. This correction was approved by the Academic Editor. The original publication has also been updated.

Reference

1. Garcilazo-Lopez, A.; Lizarzaburu-Aguinaga, D.A.; Ramos Farroñán, E.V.; Jurado, C.D.V.; Cabrera Carranza, C.F.; Jave Nakayo, J.L. The Circular Economy as an Environmental Mitigation Strategy: Systematic and Bibliometric Analysis of Global Trends and Cross-Sectoral Approaches. *Environments* **2026**, *13*, 48. [CrossRef]