A Bibliometric Analysis and Systematic Review of Dark Tourism: Trends, Impact, and Prospects

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Abstract: The main objective of this bibliometric review is to analyse and synthesise the evolution of the field of black tourism through an extensive analysis of the scientific literature. To this end, the article carries out a bibliometric analysis and systematic review that will provide information on the most studied topics, the most influential authors and publications, and the areas that require further research. The findings and conclusions of this study represent a valuable contribution to the literature on dark tourism by providing an intrinsic and comprehensive analysis of the field's current state. The analysis provides a better understanding of the theoretical and conceptual framework of the articles published to date, which is essential to lay the groundwork for future research and enrich the academic debate on dark tourism.

Keywords: dark tourism; thanatotourism; systematic review; bibliometric analysis; PRISMA

1. Introduction

The interest of academia in studying dark tourism is an axis that has been increasing in recent years (Lv et al. 2022b). In recent decades, many empirical studies in the field of tourism have shown a great interest in the study of tourist destinations whose cultural heritage is related to the dark events of the past (Magee and Gilmore 2015; Sun and Lv 2021). Most of these studies have aimed to analyse tourists' awareness of their involvement in dark tourism and their propensity to visit places with tragic histories (Juranović et al. 2021). It is because an increasing number of destinations are visited by people who want to know details of natural disasters, war events, political massacres, and other representations of tragic deaths (Cohen 2011; Mora Forero et al. 2022a). Examples are the concentration camps in Auschwitz, Poland, as well as Chernobyl, Hiroshima, Alcatraz, and the National Memorial in New York. Even the interest in these places transcends to those devastated by nature, such as Pompeii, Italy, one of Earth's most visited archaeological destinations (Mangwane et al. 2019; Xie and Sun 2018). These places that once had human misfortunes are nowadays established as destinations of interest to visit (Iliev 2021; Wyatt et al. 2022).

The theoretical framework of dark tourism is an area of research that explores the motivations, experiences, and ethical considerations related to visiting sites associated with death and tragedy (Mora Forero et al. 2022b). Dark tourism, also known as thanatotourism, is often associated with grim geographical locations, such as prisons, crime scenes, or scenes associated with any kind of massacre (Seraphin and Korstanje 2021). These places are continually associated with a dark tale of cruelty, evil, or disaster that attracts many tourists (Sharpley and Wright 2018). In this context, dark tourism describes a form of tourism that focuses on visiting places and sites related to tragic, macabre, or grim historical events, such as natural disasters, human tragedies, crimes, genocides, or places of death, such as concentration camps and cemeteries (Mora Forero et al. 2022b; Cohen 2018).

However, this type of tourism raises moral questions related to the commercialisation of death and disaster (Garcia 2012). In this context, the moral issues of tourists are classified

as critical, tolerant, supportive, and sympathetic, depending on their orientations towards the past or present and their appreciation of dark places (Chen and Xu 2021). On the other hand, emotional engagement also plays a vital role in dark tourism experiences (Sigala and Steriopoulos 2021). Emotional engagement has been proposed as an explanatory concept in a typological framework for dark tourism experiences (Israfilova and Khoo-Lattimore 2019). The intensity and type of emotions provoked during the dark tourism experience contribute to visitors' understanding and interpretation of sites (Sigala and Steriopoulos 2021).

In general, dark tourism offers visitors the opportunity to interact with historical events and places that have provided a unique perspective on the past and its impact on the present (Lushchyk and Mamchur 2022). Thus, the study of dark tourism is framed within behavioural and interpretive perspectives, evolving as new definitions, conceptual frameworks, and theories that emerge (Lynes and Wragg 2023). In this way, dark tourism has gained attention in recent years, with academic studies exploring its definitions, impacts, and subcategories (Kleshcheva 2021; Zheng et al. 2020), such as Holocaust tourism and slavery heritage tourism (Miles 2015).

Some notable examples of places where dark tourism activities are carried out are the following:

1. European Cemeteries Route: This route includes a large number of cemeteries in various European locations, and Spain is one of the leading countries in this type of tourism (Carrasco-Santos and Padilla-Meléndez 2016).
2. Dark tourism sites in Malaysia: Although not globally recognised yet, Malaysia has many dark tourism sites that offer unique experiences for visitors (Jamin et al. 2020).
3. Chornobyl: The site of the nuclear disaster in Ukraine is a well-known dark tourism destination (Proos and Hattingh 2022).
4. The 9/11 Memorial: The memorial in New York City commemorating the September 11th terrorist attacks is another example of a dark tourism site (Proos and Hattingh 2022).
5. Auschwitz concentration camp: This former Nazi concentration camp in Poland is visited by tourists seeking to learn about the Holocaust (Proos and Hattingh 2022).
6. Battlefields of World War I and II: These historical sites, such as the Somme in France or Normandy in France, attract visitors interested in the history and impact of these wars (Proos and Hattingh 2022).
7. Kelud Mountain: Located in Kediri Regency, Indonesia, Kelud Mountain is an active volcano that has become a dark tourism destination after its eruption. Visitors are attracted to the crater of the mountain (Sari et al. 2020).

Dark tourism has become increasingly important in recent years because of its potential to generate income and promote historical remembrance (Gibson et al. 2022). Many countries have recognised the importance of black tourism and started promoting it as a tourism activity (Lee and Newpaney 2017). Thus, the popularity of dark tourism continues to grow and is likely to remain an essential aspect of the tourism industry in the future (Mora Forero et al. 2022b). As a result, dark tourism has attracted increasing interest from the academic community and research experts. In order to properly understand the current state of this field, it is of great interest to analyse and synthesise the academic production of literature published so far. For this reason, this research aims to carry out a bibliometric and systematic review that answers the following research questions:

1. How has the number of articles published on dark tourism evolved?
2. What are the field's most influential journals, articles, authors, and geographical regions?
3. What future lines of research exist in the field of dark tourism?

We will conduct a bibliometric analysis and systematic review by analysing the existing literature to answer these research questions. It will allow us to obtain information on the most frequently studied topics, the most influential authors and publications, and the areas requiring further research. This information will enable us to draw conclusions identifying research trends and gaps in the field.

This study contributes to the literature by conducting an intrinsic analysis of the current state of dark tourism, which can aid researchers and professionals in the tourism sector by providing them with an overview of the epistemological structure of the field. It will provide them with a knowledge base of the subject area, enabling a better understanding of the theoretical framework of the articles published thus far. In addition, this research identifies patterns, trends, and gaps in research. It can help researchers interested in the field identify emerging trends and new areas of research, which can help keep the field of dark tourism relevant and up-to-date.

This paper is divided into five sections. Section 2 outlines the research methods utilised, while Section 3 provides the results obtained. In Section 4, a knowledge framework is presented, detailing the various dimensions and aspects of research in this field. Finally, Section 5 concludes the paper with a summary of conclusions and findings.

2. Methods

This study uses two approaches, based on a bibliometric analysis and a systematic review:

First, we conducted a bibliometric analysis, combining different methods to analyse a body of research (Santos-Jaén et al. 2021; León-Gómez and Mora Forero 2022). These methods rely on descriptive publication data on authors, journals, institutions, geographical regions, keywords, and citations to generate networked knowledge maps within a research field to identify research topics and future research directions (Zhang et al. 2022). Thus, using different techniques and indicators, bibliometric analysis allows us to classify data and make representative summaries (Li et al. 2020). It will allow us to understand the theoretical architecture of the published literature and identify significant studies (León-Gómez et al. 2021).

Secondly, a systematic review was carried out following the PRISMA 2020 protocol. PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) is a widely recognised guide for conducting and reporting systematic reviews and meta-analyses (López-Rodríguez et al. 2022). To this end, this method includes a flowchart describing the process of carrying out the bibliometric analysis performed (Khin Khin Oo and Rakthin 2022). Thus, this methodology helps researchers to describe bibliographic data, including the total number of publications, citation counts, and other bibliometric indices (Page et al. 2021). In conclusion, the PRISMA method contributes to ensuring that the study is conducted in a transparent, reproducible, and high-quality manner, and that the conclusions are written clearly and concisely (Dandil et al. 2020; Alarcón-Aldana et al. 2020; Ahmed 2020; Desprez et al. 2020).

Regarding the data collection and evaluation process for the construction of the database, we first defined the following search criteria to identify the most relevant documents: "*Dark Tourism*" or "*Black Tourism*" or "*Thanatourism*". The results obtained are shown in Table 1.

Table 1. Publications listed in the database.

Database	Records	Articles	Book Chapter	Book	Other
Scopus	452	274	109	21	48
Web of Science	353	324	0	7	22
Total	*805*	*598*	*109*	*28*	*70*

Source: own elaboration.

We obtained 452 documents in Scopus and 353 in Web of Science, providing 805 documents, as shown in Table 1. However, to ensure the integrity and coherence of the bibliometric analysis, we formulated the inclusion and exclusion criteria outlined in Table 2. These criteria serve as the entry and exit points of the database, ensuring that only pertinent documents are considered in the analysis. By establishing clear and specific criteria, the

inclusion of unrelated or low-quality research is avoided, thereby enhancing the validity and reliability of the results.
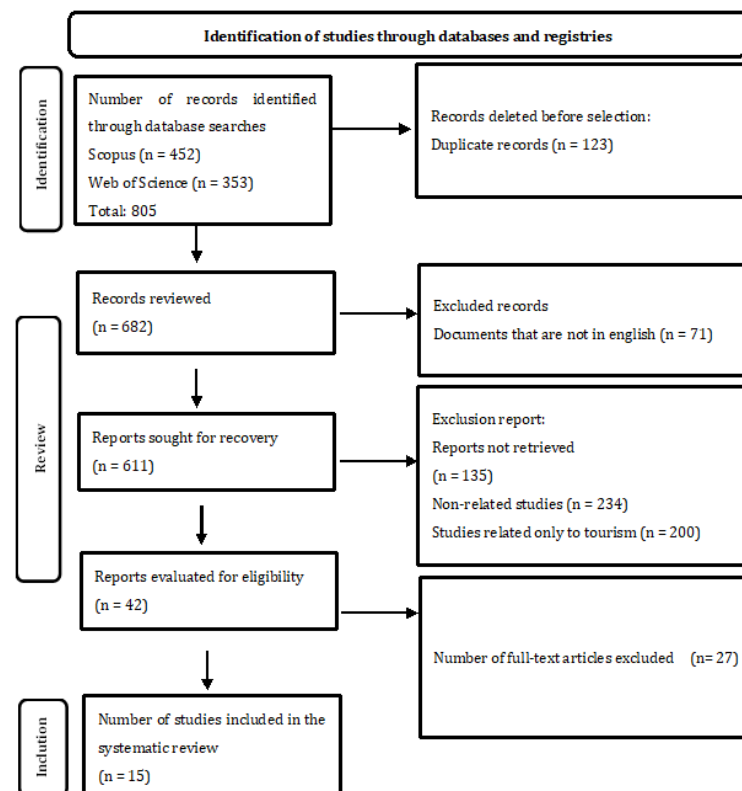
Table 2. Inclusion and exclusion criteria of the bibliometric analysis.

Inclusion Criteria	Exclusion Criteria
Studies developed between 2018 and 2022	Publications before 2018
Studies associated with the development of dark tourism	Tourism studies not related to dark tourism
Documents related to the topic of dark tourism, tourist experience, imaginaries, death, and tragedy	Tourism studies not related to dark tourism
Publications that are developed in the field of dark tourism	Duplicate documents in the database
Empirical, scientific, and theoretical study papers	Studies where dark tourism is not the main focus of the research

Source: own elaboration.

After applying the inclusion and exclusion criteria detailed in Table 2, 173 articles were selected for the bibliometric analysis. These articles were used as the sample for this analysis.

On the other hand, we decided to apply more exhaustive exclusion criteria to conduct the systematic review. These criteria are represented through a PRISMA flowchart, as shown in Figure 1. The decision to apply these stricter criteria was based on the nature of the systematic review, which requires thorough collection, evaluation, and synthesis of all available scientific evidence. The use of more stringent exclusion criteria is justified by the need to maintain high methodological quality, relevance, and reliability standards in the studies included in the review.

Figure 1. Flowchart PRISMA by levels. Source: own elaboration.

After applying the criteria defined in Figure 1, 15 articles were identified that met the requirements to be included in this systematic review. This carefully selected number of studies provided a solid and reliable foundation for conducting a thorough analysis. The meticulous choice of these articles allowed for a more precise and comprehensive review of the subject matter, which, in turn, facilitated the formulation of solid and dependable conclusions.

Finally, the acquired data were exported to an Excel file, serving as the foundational database for this research. The database was partitioned into two sections: the first, designated for bibliometric analysis, consisted of 173 articles, while the second included 15 articles specifically chosen to conduct the systematic review.

3. Results

3.1. Bibliometric Analysis

Firstly, this study aimed to analyse the productivity and scientific impact of the articles published in the field of research analysed. For this purpose, we used Lotka's Law. Lotka's Law is widely used in bibliometric studies to analyse the productivity and impact of researchers in a given area of knowledge. It is a valuable tool in bibliometrics to understand the distribution of scientific productivity, identify leaders in the field, and assess the impact of research in a specific discipline.

The data in Table 3 show the scientific production written by a specific number of authors and the percentage that these authors represent in the total. In the first dataset are 1157 papers written by a single author. It represents 1.702% of the total scientific production in the study. In the second dataset, there are 126 papers written by two authors. Here, we see that a small percentage of documents (only 0.187% of the total) have precisely two authors. In summary, these data follow the typical pattern of Lotka's Law, where a few authors write most papers, while many authors contribute only a small number of papers. The distribution of scientific production is uneven, where the vast majority of papers are produced by authors with high scientific production (single or few authors), while a minority of papers involve the collaboration of a more significant number of authors. It reinforces the idea that scientific production follows an extended tail distribution, where a few researchers significantly impact the field, while many others have a minor impact.

Table 3. Lotka's coefficient.

Articles	Number of Authors	Ratio of Authors
1	1.157	1.702
2	126	0.187
3	40	0.036
4	23	0.035
5	5	0.008
6	3	0.004
7	1	0.001

Source: own elaboration.

Calculating the number of authors is critical to understanding authorship patterns and collaborative research. Analysing the number of authors in academic publications helps to understand if the research field is becoming a team effort or if solitary authorship still prevails. This information is valuable for funding institutions and agencies, as they can identify prolific authors and research collaborations, allowing them to encourage collaborative initiatives (León-Gómez et al. 2023). In addition, this information can also be of great help to emerging researchers, since being part of articles with established authors can be crucial for their visibility and recognition in the academic community (León-Gómez et al. 2021). In conclusion, authorship trend analysis provides valuable insights for various stakeholders in the academic and research communities.

On the other hand, calculating the number of authors is important to understand their influence on citation analysis (López-Rodríguez et al. 2022). Articles with more authors may attract more citations because of the broader network of researchers promoting the work, which affects the impact of citations and the visibility of the research (Santos-Jaén et al. 2021).

Compared to other sectors, analysing the number of authors in the tourism sector provides valuable knowledge and significant benefits. First, tourism is a global industry that encourages international collaboration between researchers from different countries (Alaminos et al. 2020). This analysis reveals global trends, highlighting regions and countries active in tourism research (Ruiz-Palomo et al. 2020). Secondly, the interdisciplinary nature of tourism research, covering fields such as hospitality management, cultural studies, and environmental science, is evidenced through collaboration between authors from various disciplines (Mármol Andreu et al. 2022). This interdisciplinary collaboration is essential to develop comprehensive approaches that address the complex challenges of tourism (López-Rodríguez et al. 2022). Finally, the analysis of the number of authors in tourism reveals how experts in geography, economics, sociology, and environmental studies collaborate, thus enriching our understanding of tourism phenomena (Alaminos et al. 2020). These analyses illuminate the dynamics of collaboration and guide the future development of tourism research, promoting a more profound and holistic understanding of this multifaceted industry (Ruiz-Palomo et al. 2020; Mármol Andreu et al. 2022; Santos-Jaén et al. 2022).

Below, we analyse the annual scientific production. Table 4 shows the evolution of articles published from 2018 to 2022. The analysis of this table reveals a variation in scientific production over the years. In 2018, a total of 173 articles were published. The following year, the number of articles decreased significantly to 94, possibly due to various reasons, such as the subject matter of the research, available funding, or trends in scientific publishing at that time. In 2020, despite being the pandemic year, articles increased to 103. This could be due to the large amount of COVID-19 research and the urgency to share knowledge. The effects of the pandemic caused the trend to continue until the following year, when the trend remained stable at 104 articles. The stabilisation in these two pandemic years resulted in consolidating research areas related to COVID-19 and black tourism. From 2022 onwards, there was an increasing trend in the number of articles, which could suggest increased research activity from that year ahead or the publication of studies that had been ongoing during the pandemic.
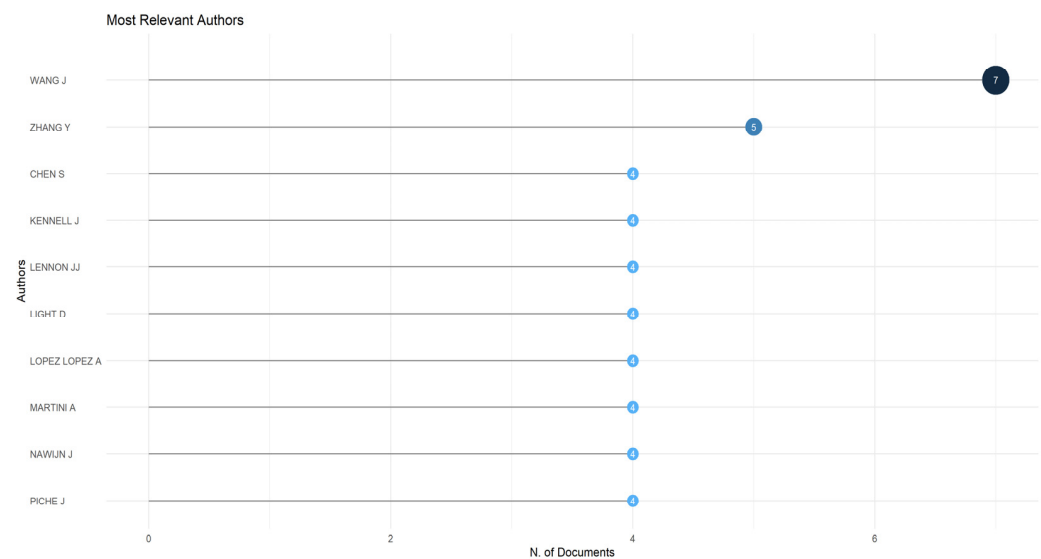
Table 4. Annual scientific production.

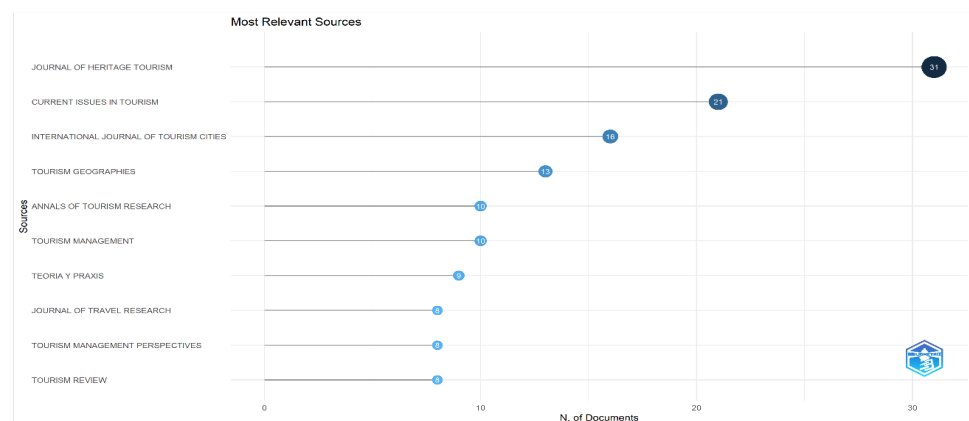| Year	Articles
2018	173
2019	94
2020	103
2021	104
2022	256

Source: own elaboration.

On the other hand, we analysed in the Figure 2 the most relevant authors in the field of dark tourism. Analysing the most relevant authors in a bibliometric analysis is essential to understand the dynamics of research in a specific field. It provides valuable information on research quality, emerging trends, influence in the academic community, and potential collaborations, which benefits individual researchers as well as institutions and funding agencies. The list of annual scientific output with the highest number of citations can be seen in the figure below, which is headed by Wang. J. and Zhang Y., containing 36 citations with the 10 most-relevant authors being named. These authors present articles with research on a novel topic of dark tourism.

Figure 2. Most relevant authors. Source: own elaboration.

In Figure 3, the analysis of relevant sources reveals that *The Journal of Heritage Tourism* has the highest impact, with 31 articles, followed by *Current Issues in Tourism*, with 21 articles, positioning itself as the second-most-relevant journal in Scopus and Web of Science in the systematic review of dark tourism and thanatotourism. *The International Journal of Tourism Cities* comes in third, with a total of 16 articles, while *Tourism Geographies* has 13 articles. However, the impact of *Annals of Tourism Research*, *Tourism Management*, *Teoria y Praxis*, *The Journal of Travel Research*, *Tourism Management Perspectives*, and *Tourism Review* is less than 10 articles in the time window analysed.

Figure 3. Most relevant sources. Source: own elaboration.

The Table 5 shows several articles on dark tourism that have received a significant number of citations, indicating that these papers have been widely recognised and referenced in the academic community. The theme with the most citations overall is (Martini and Buda 2020), entitled "Dark tourism and affection: framing sites of death and disaster", published in 2020, with 47 citations. The year 2018 emerged as a crucial turning point in dark tourism research, and its importance cannot be underestimated. Most of the articles with the most citations in this bibliometric analysis, representing the leading research in the field, were published that year. These significant contributions reveal the growing interest and attention that dark tourism has attracted among academics and the global community. The year 2018 marks a period in which dark tourism studies matured and diversified, providing valuable insights into visitor motivations, local community perceptions, and experiences in dark destinations. This concentration of outstanding research in a single

year reflects the urgent need to explore better and understand this evolving phenomenon, and its impact on contemporary society and culture.

Table 5. Top 10 most-cited documents.

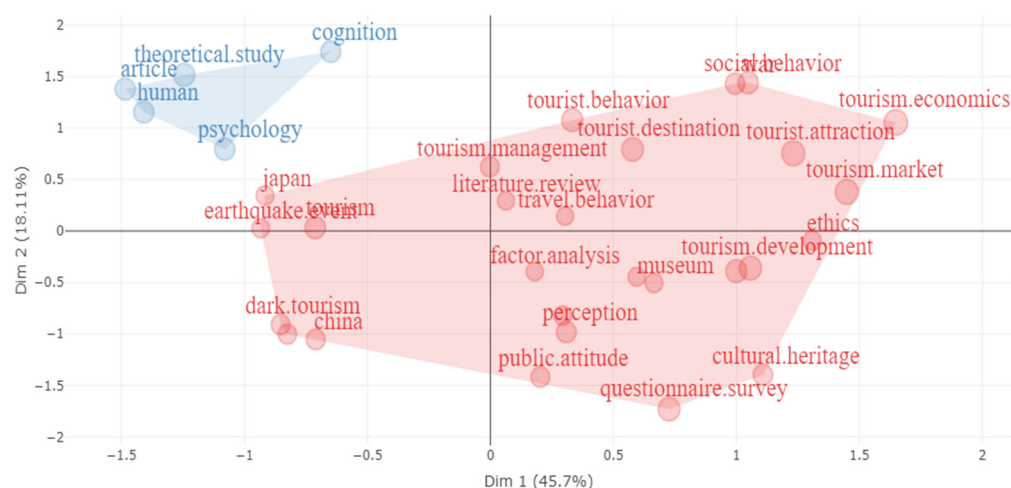| Reference	Authors	Journal	Document Title	Year	Cites
(Martini and Buda 2020)	Martini, A. Buda, D.M.	*Current Issues in Tourism*	Dark Tourism and Affect: Framing Places of Death and Disaster	2020	47
(Wright and Sharpley 2018)	Wright, D. Sharpley, R.	*Current Issues in Tourism*	Local community perceptions of disaster tourism: the case of L'Aquila, Italy	2018	45
(Ivanova and Light 2018)	Ivanova, P. Light, D.	*The Journal of Heritage Tourism*	'It's not that we like death or anything': exploring the motivations and experiences of visitors to a lighter dark tourism attraction	2018	40
(Lin et al. 2018)	Lin, Y. Kelemen, M. Tresidder, R.	*The Journal of Sustainable Tourism*	Post-disaster tourism: building resilience through community-led approaches in the aftermath of the 2011 disasters in Japan	2018	35
(Boateng et al. 2018)	Boateng, H. Okoe, A.F. Hinson, R.E.	*Tourism Management Perspectives*	Dark tourism: Exploring tourist's experience at the Cape Coast Castle, Ghana	2018	32
(Zheng et al. 2018)	Zheng, C. Zhang, J. Qian, L. Jurowski, C. Zhang, H. Yan, B.	*Current Issues in Tourism*	The inner struggle of visiting 'dark tourism' sites: examining the relationship between perceived constraints and motivations	2018	32
(Wu and Cheng 2018)	Wu, H.C. Cheng, C.C.	*International Journal of Tourism Research*	What drives supportive intentions towards a dark tourism site?	2018	29
(Podoshen et al. 2018)	Podoshen, J.S. Yan, G. Andrzejewski, S.A. Wallin, J. Venkatesh, V.	*Tourism Management*	Dark tourism, abjection and blood: A festival context	2018	23
(Hartmann et al. 2018)	Hartmann, R. Lennon, J. Reynolds, D.P. Rice, A. Rosenbaum, A.T. Stone, P.R.	*The Journal of Tourism History*	The history of dark tourism	2018	19
(Çakar 2018)	Çakar, K.	*International Journal of Tourism Cities*	Experiences of visitors to Gallipoli, a nostalgia-themed dark tourism destination: an insight from TripAdvisor	2018	19

Source: own elaboration.

Conceptual structure maps in bibliometrics are a valuable tool for understanding the organisation and evolution of research in a specific area (León-Gómez and Mora Forero 2022). They provide an overview of the relationships between concepts, help to identify trends and areas of interest, and facilitate informed decision-making (López-Rodríguez

et al. 2022). Their use can improve the effectiveness and efficiency of research and provide valuable information for science policymakers, academic institutions, and the scientific community (León-Gómez et al. 2021). According to the conceptual structure map, the distribution of the dots along the dimensions and their relative positions are used to evaluate the results; thus, the words are distributed similarly according to the proximity of the dots to each other (Santos-Jaén et al. 2021; León-Gómez et al. 2023). By visually representing the contextual structure of each sentence and tracing their links, it was possible to create a map of the conceptual structure of the language used to talk about dark tourism and thanatotourism with a cause in the academic literature.
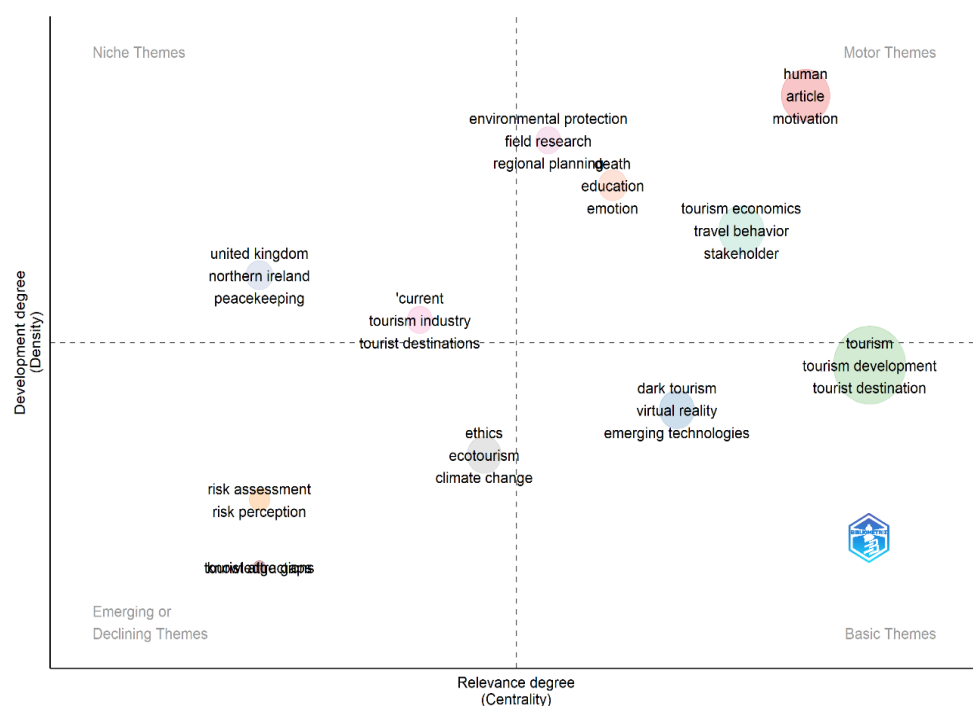
In Figure 4, a conceptual structure map has been created that visualises the critical relationships between the most representative terms in dark tourism across the 173 articles that make up the basis of the bibliometric analysis. The blue cluster represents psychology, humanity, cognition, and theoretical studies. The red cluster in this bibliometric review reveals itself to be a highly diverse and comprehensive set, comprising twenty-three elements that approach the fascinating phenomenon of dark tourism from various perspectives. Firstly, it analyses tourist behaviour, examining concepts such as travel behaviour, tourist behaviour, perception or public attitude, among others, to better understand the motivations and decisions that drive travellers to dark destinations. In addition, it delves into tourism management, exploring crucial areas such as tourism management, tourism market, tourism economics, cultural heritage, and tourist attractions to unravel the commercial and economic dynamics associated with dark tourism. From a geographical perspective, it focuses on two nations of great relevance in this context: China and Japan. Finally, it also considers the methodological techniques used in researching this topic, such as factor analysis, bibliometric review, literature review, and surveys, among others, highlighting the diversity of approaches that enrich our understanding of this constantly evolving phenomenon. This map provides an overview of the interaction between psychology and dark tourism, highlighting emerging themes and relevant research areas for future studies in this exciting multidisciplinary research area.

Figure 4. Map of the conceptual structure of dark tourism and thanatotourism relationships. Source: Bibliometrix.

In organising the black tourism research field, the importance of thematic mapping should be emphasised. It is because, in bibliometrics, a thematic map is essential to understand the organisation and evolution of knowledge in a specific research field. It facilitates the identification of relevant topics, emerging areas, and research opportunities, as well as effective decision-making and communication of scientific results. Its use in bibliometrics provides a comprehensive and valuable overview for researchers, academic institutions, and funding agencies in the analysis and development of scientific research.
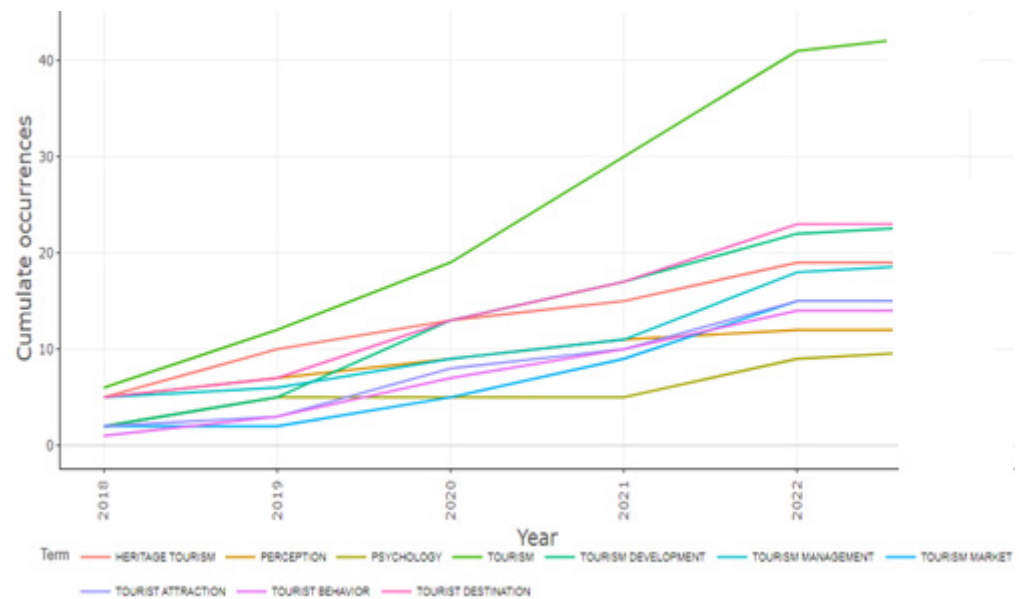
Figure 5 presents a thematic map, which, due to the inherent structure of its components, can be divided into four distinct and revealing phases. The first phase is related to Tourism Development and Specialisation, and focuses on the tourism industry and specific destinations, such as the UK and Northern Ireland. The second phase is a Deep Understanding of Tourism phase, comprising a wide range of areas that we can identify in three main axes. The first relates to environmental protection, the second to humanity, education, and emotions, and the final axis covers issues related to traveller behaviour itself. The third development phase highlights emerging issues of great importance, such as ethics, ecotourism, and climate change concerns, as well as risk assessment and risk perception in tourism. Finally, the fourth phase encompasses elements related to Tourism Innovation and Evolution. This phase highlights the importance of exploring new dimensions of tourism related to emerging technologies, while observing the continuous development and transformation of the tourism industry and destinations.

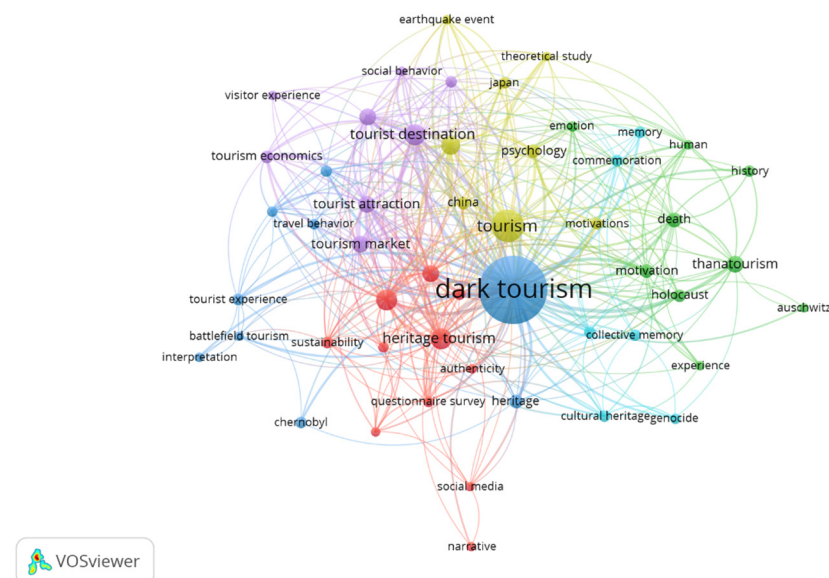**Figure 5.** Thematic map. Source: Bibliometrix.

In the following, we propose to conduct a long-term word-frequency analysis to examine the evolution and impact of critical terms over time in the specific research field. This analysis will allow us to identify the most recurrent words in the scientific literature over different periods, providing a deeper insight into trends and changes in the terminology used in the academic community. Figure 6 demonstrates that there are variations in the frequency of terms associated with this type of tourism; likewise, new relationships have continued to be named from 2018 to 2022.

Co-occurrence analysis is a technique used in bibliometrics to identify relationships and patterns between terms and keywords that appear together in scientific papers. VOS Viewer is a widely used software to perform this type of analysis. Co-occurrence analysis with VOS Viewer can help researchers identify emerging areas, potential collaborations, and understand the structure and evolution of knowledge in a given field.

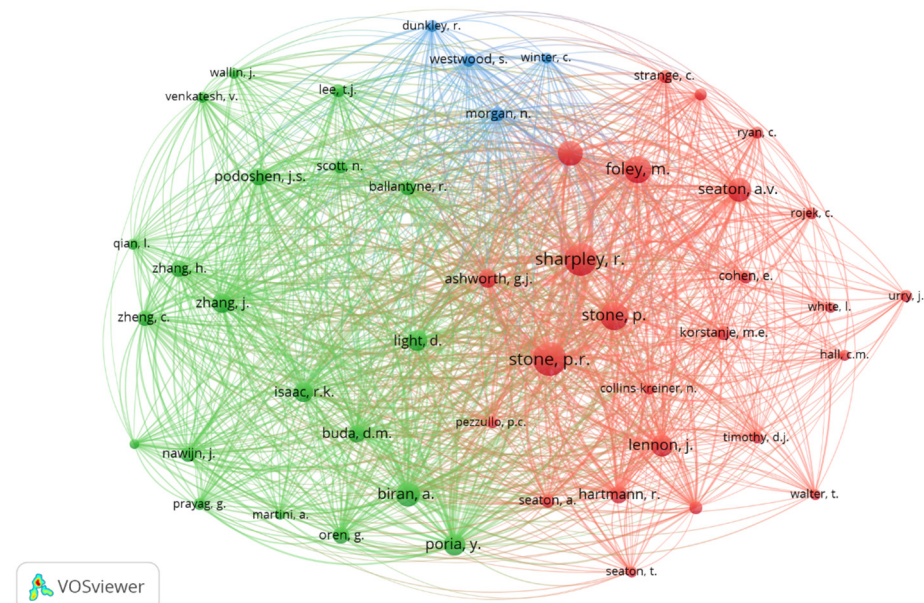**Figure 6.** Frequency of words over time. Source: Bibliometrix.

The VOSviewer software version 1.6.19 has created five clusters in Figure 7, with "dark tourism" being the most prominent word, as it is the focus of the study. This word is connected to collective memory, culture, heritage, genocide, and heritage. The red cluster highlights "heritage tourism", "sustainability", "authenticity", "survey with a questionnaire", "social networks", and "narrative". The yellow cluster emphasises "tourism", "psychology", "theoretical study", and "motivation" in relation to dark tourism. The purple cluster identifies six keywords related to the tourist destination, attraction, visitor experience, social behaviour, and the tourist market. Finally, the green cluster is centred around "thanatourism", the history, emotion, and experience of visiting these places, the Holocaust, and the concept of death, which all generate significant interest in this type of tourism.

Figure 7. Keyword occurrence map. Source: VOS Viewer.

Figure 8 presents a coauthorship analysis highlighting the most relevant and significant collaborations in our bibliometric study. This analysis allows us to visualise the connections between authors and to reveal the collaborative networks that have emerged

in our research field. The nodes in the graph represent the authors, and the lines connecting them indicate the frequency and intensity of their collaborations in different scientific works. By studying this coauthorship network, we can identify clusters of researchers who have worked together on joint projects, providing a more complete and deeper insight into the collaborative dynamics in our study area. This analysis is fundamental to understanding the interaction and impact of researchers in our field and provides us with valuable information for future research and collaborations.

Figure 8. Cocitation of authors. Source: VOSViewer.

The coauthorship analysis identified three distinct groups of authors. In the red group, we find leading researchers who have had a significant impact on the field related to tourism development as a whole. Authors such as Stone, Sherpley, Foley, Seaton, Lennon, Hartman, Cohen, and Korstanje stand out for their influential contributions. Similarly, the green group comprises notable researchers, such as Biran, Light, Podoshen, Zhang, Poria, Ballantyne, Scott, and Isaac, who have contributed substantially to this area, an area of study that has looked more specifically at tourist behaviour. However, the blue group presents a more specialised segment in black tourism, where this specialisation has led to a decrease in the number of authors to only four. It suggests that black tourism is an area of research addressed by a limited number of authors.

Analysing trending topics in bibliometrics is a fundamental task that will allow us to obtain a panoramic and updated view of the most relevant and evolving topics in a specific field of study. Through this analysis, we will identify the research areas that are gaining more attention and popularity among experts and scholars, and emerging topics that could become future critical fields of study. In addition, studying trends in scientific production will help us understand the direction in which research is moving in the scientific community, facilitating strategic decision-making regarding resource allocation and future research planning. Ultimately, this analysis will allow us to keep abreast of advances and changes in scientific knowledge, which is essential to remain current and competitive in our field of study.

Figure 9 shows the terms with the trend topics. Among the terms with the highest frequency, "Tourism" stands out with a total of 40 mentions, which reflects its importance as the central axis of the study. Likewise, terms with a frequency of 30 were identified, such as "Tourism management", "tourism market", "tourism destination", "tourism development", "tourism attraction", and "heritage tourism", indicating the relevance of aspects related to management, the market, tourism destinations, development, tourism attractions, and

heritage tourism in the literature analysed. On the other hand, terms were found with a frequency of 20, including "dark tourism", "travel behaviour", "theoretical study", "questionnaire survey", and "China", suggesting an interest in topics such as dark tourism, travel behaviour, theoretical studies, questionnaire surveys, and the particular situation of tourism in China. These results provide a comprehensive view of the most relevant and emerging issues in the tourism field, which will enrich the understanding and future direction of research in this field.
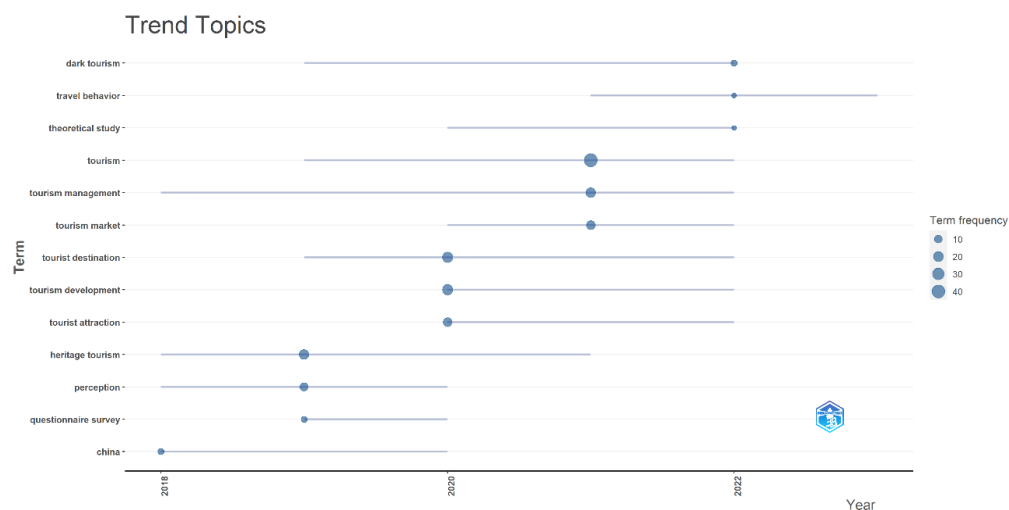

Figure 9. Trend topics. Source: Bibliometrix.

Figure 10 shows a Sankey diagram, or three-field diagram, representing the relationship between the most relevant authors and the most popular keywords in black tourism. In this type of diagram, three main fields are established: authors, keywords, and the frequency with which they are mentioned in the analysed documents. In the "Authors" field, the names of the most prominent researchers in the studied literature are listed, which, in this case, are five: Seaton, Light, Biran, Stone, and Lennon; the connections are drawn with lines to the "Keywords" field, which are: dark tourism, tourism, death, heritage, motivation, and collective memory. Here, the most popular keywords used in the research papers related to each author are presented.
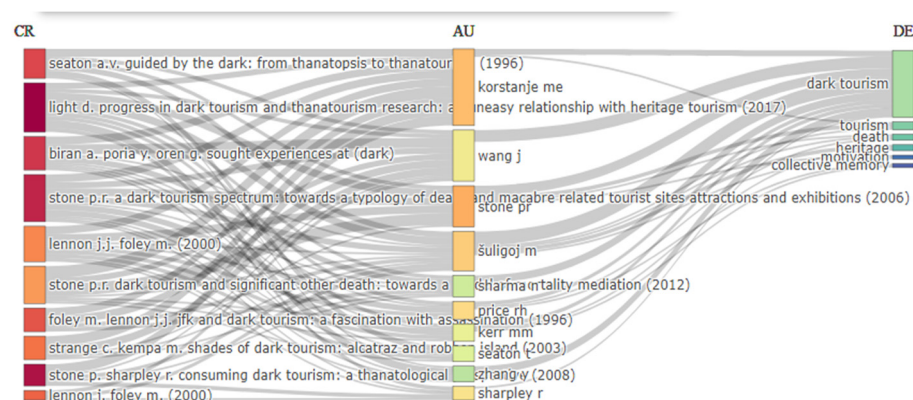

Figure 10. Three-field plot. Source: own elaboration.

3.2. Systematic Review

In this section, we systematically reviewed articles published in dark tourism from 2018 to the present. To this end, we have employed the PRISMA methodology, as it is a valuable tool to synthesise and rigorously analyse the existing evidence, which allows a deeper understanding of the phenomena studied, and provides useful information for

decision-making and knowledge generation. Through this analysis, we have systematically synthesised and analysed evidence from multiple studies, providing a deeper and richer understanding of the perspectives and experiences of participants in the study area.

Table 6 lists the articles, objectives, methods, and determinants of dark tourism and thanatotourism, from which was selected 15 documents from the application of the PRISMA methodology which fulfilled the inclusion and exclusion criteria during the systematic review (S.R). Including 15 articles in our systematic literature review is based on carefully considering several key factors. Firstly, we have chosen to focus on the timeliness of the topic under consideration, so we set an exclusion criterion of a publication date beyond a five-year interval. We wanted our review to reflect the most recent research and findings in the field, ensuring our results are relevant to the current context. Furthermore, by excluding studies where black tourism was the main focus, we have concentrated more precisely on papers that address specific aspects of our topic of interest, allowing us to obtain a more detailed and focused view of the relevant literature. The selection of 15 articles balances comprehensiveness and the capacity for in-depth analysis, allowing us to conduct a rigorous and comprehensive systematic review.

Table 6. Systematic review.

Reference	Author & Year	Document Title	Objective	Method	Determinants
(Lv et al. 2022a)	Lv, X. Luo, H. Xu, S. Sun, J. Lu, R. Hu, Y. (2022)	Spectrum of dark tourism: visual expression of the dark experience	Analyse dark tourism from conceptual bases of the last century.	Photography of tourists in places where dark tourism is practiced based on field experiments.	A deep experience is gained through paintings and photographs, based on the feelings of the people who visit the places related to dark tourism.
(Dresler 2023)	Dresler, E. (2023)	Multiplicity of moral emotions in educational dark tourism	Determine the ethical paradoxes, analysing the education and emotions of dark tourism in children.	Thematic analysis of the multiplicity of emotions that children have regarding the topic of dark tourism.	A context with a greater impact on the moral–ethical issue is evident in the educational experiences of dark tourism.
(Kerr et al. 2020)	Kerr, M.M. Stone, P.R. Price, R.H. (2020)	Experiences of young tourists in dark tourism sites	Propose a model for responding to academic questioning at dark tourism sites based on children's experiences.	Data collection at different stages, allowing children to feel more comfortable with the researchers.	Currently, research on dark tourism focuses exclusively on adults and does not consider the experiences of young tourists.
(Sun and Lv 2021)	Sun, J. Lv, X. (2021)	Feeling dark, seeing dark: mind-body in dark tourism	Illustrate how they affect the feelings of potential tourists at different levels of darkness, based on photos on a website.	Surveys to identify dark tourism experiences in bidirectional mind–body synchronisation.	A broad understanding of theory with implications for the design and marketing of dark tourism incarnation products is determined.
(Jordan and Prayag 2021)	Jordan, E.J. (2021)	Cognitive appraisals, emotions and coping strategies of residents at local dark tourism sites	Analyse cognitive appraisals of the experiences and emotions of residents in dark tourism sites.	Semistructured surveys to residents of Christchurch, New Zealand.	Determines the emotional experiences of residents at dark tourism sites.
(Magano et al. 2023)	Magano, J. Fraiz-Brea, J.A. Leite, Â. (2023)	Dark tourists: profile, practices, motivations and wellbeing	To provide a global vision of dark tourism topics based on the practices, motivations, and well-being of tourists.	Systematic review in Web of Science, Scopus and Google Scholar databases, focused on SLR.	Negative and positive impacts on the Holocaust were obtained from tourist welfare associated with marketing and management at dark tourism sites.

Table 6. *Cont.*

Reference	Author & Year	Document Title	Objective	Method	Determinants
(Zhang 2021)	Zhang, Y. (2021)	Unpacking visitor experiences at dark tourism sites of natural disasters	Analyse the determinant experiences in the dark sites of natural disasters.	Semistructured interviews and a study of photographs.	Dimensions of introspective and relational experience are obtained, which helps illuminate the value of promoting dark tourism in natural disasters.
(Zhang 2022)	Zhang, Y. (2022)	Experiencing human identity in dark tourism sites of natural disasters	Determine the importance of human identity among visitors in a dark tourism context.	Semistructured interviews with visitors of natural-disaster-related dark tourism sites.	It highlights the importance of dark tourism in the scientific literature, investigating the impact it has on human identity.
(Millan et al. 2021)	Millan, D. Millán, V. Hernández, R. (2021)	Dark tourism in southern Spain (Cordoba): a demand analysis	To provide knowledge in the field of dark tourism.	Questionnaires to people who visit cemeteries or "haunted" places in the province of Córdoba.	This type of tourism explores a morbid curiosity about people towards the supernatural; having a desire to know the facts of what occurred in the place.
(Jureniene and Radzevicius 2022)	Jureniene, V. Radzevicius, M. (2022)	Peculiarities of sustainable cultural development: a case of dark tourism in Lithuania	Determine the importance of the concepts of sustainable tourism and dark tourism for regional tourism development.	Semistructured interviews with the local community in the processes of cultural heritage protection and cultural tourism development with the private sector.	It focuses on the issues of sustainable development of dark tourism in relation to regional tourism.
(Weaver et al. 2018)	Weaver, D. Tang, C. Shi, F. Huang, M.F. Burns, K. Sheng, A. (2022)	Dark tourism, emotions and visitor aftereffects in a sensitive geopolitical context: a Chinese case study	Analyse the intersection between dark tourism and the subsequent visitor experience in geopolitics.	Surveys to domestic visitors of the Lushun Prison Museum in Dalian, China.	It recognises the negative implications of dark tourism for the bilateral relationship as it becomes increasingly tense between China and Japan.
(Ivanova and Light 2018)	Ivanova, P. Light, D. (2018)	'Not that we like death or anything': exploring the motivations and experiences of visitors to a darker, lighter tourist attraction	Explore the reasons for visiting a more obscure (heritage) tourist attraction.	Semistructured interviews with visitors to the London Dungeon.	An interest in visiting a place of death, suffering, or the macabre is reported, making it a dark tourism activity.
(Stone 2018)	Stone, P.R. (2018)	Dark tourism in an era ofspectacular death	Offer the dead a memorial future so that they have an honoured past.	Data collection is done through interviews.	It is evident that, throughout time, the covenant between the living and the dead has been one of mutual obligation, while death is universal across time and communities.
(Podoshen et al. 2018)	Podoshen, J.S. Yan, G. Andrzejewski, S.A. Wallin, J. Venkatesh, V. (2018)	Dark tourism, abjection and blood: a festive context	Identify dark tourism and its significant importance in the literature.	Interviews and content analysis.	The process and outcomes of dark tourism related to tourists and local hosts playing a key role in the relationships are understood.

Table 6. *Cont.*

Reference	Author & Year	Document Title	Objective	Method	Determinants
(Boateng et al. 2018)	Boateng, H. Okoe, A.F. (2018)	Dark tourism: exploring the tourist experience at Cape Coast Castle, Ghana	Design a phenomenological research model exploring tourist experiences.	Data from the Tripadvisor website was used.	Dark tourism experiences are obtained and conceptualised from cognitive and emotional perspectives.

Source: own elaboration.

4. Knowledge Framework

By analysing research on dark tourism, we have concluded that this framework has several aspects and dimensions. These, along with the research's directions and critical points, pose complex challenges that require change. As a result, we developed a theoretical framework based on previous studies (León-Gómez et al. 2023; Geng et al. 2022) that serves as a reference for future research.

In dark tourism, a theoretical knowledge framework has been established through this study. This framework sheds light on collaborative and co-occurring networks, and highlights the latest research trends. By analysing author cooperation and co-occurrence, the study provides an up-to-date overview of the current state of the research. The main contents of the research framework are also thoroughly explored.

Figure 11 shows the main insights gained from the previous analyses, which form the knowledge framework of this research.
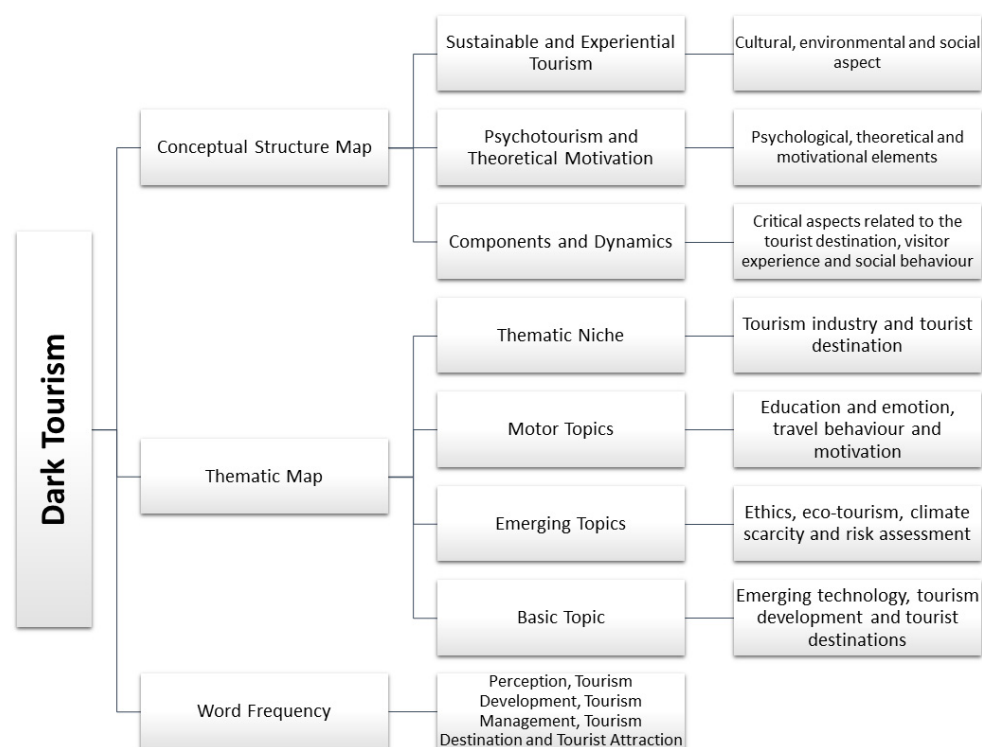

Figure 11. Category of dark tourism. Source: own elaboration.

This knowledge framework enables readers to gain an integrated and comprehensive understanding of the topic under analysis from different perspectives. This enables future researchers to obtain influential and relevant publications, potential collaborations, and critical references. It also provides trends in this domain, enabling researchers to make better decisions in their future research and maximise research impacts.

5. Conclusions

This study aimed to analyse the empirical structure of the literature published on dark tourism. It is of great importance, as, through the analysis of scientific production, we have obtained a comprehensive view of the field of study and identified leaders, trends, and future lines of research. Therefore, this study is a valuable tool for advancing knowledge and informed decision-making in the professional field of dark tourism.

Firstly, we have answered the first research question concerning the evolution of the number of articles on black tourism. To do so, we have carried out the analysis of Lotka's coefficient in our study. This reveals a marked concentration in the authorship of the articles published in the research field studied. Most articles are written by one or two authors, indicating the prevalence of individual researchers or small teams in scientific production. It is remarkable that only a tiny percentage, represented by 0.013% of the articles, is written by five or seven authors, highlighting the scarcity of extensive collaborations in this area of knowledge. This asymmetric distribution of authorship raises questions about the factors influencing this trend, such as the nature of the field of study, the dynamics of collaboration, and the attribution of academic credit. Consequently, our findings emphasise the importance of further investigating the reasons behind this concentration in authorship, and how it may affect the development and quality of research in the field. Furthermore, future studies are invited to examine the impact of multiauthor collaboration on knowledge generation and scientific progress in general. A better understanding of these dynamics may contribute to fostering interdisciplinary cooperation and strengthening the scientific basis of our discipline.

On the other hand, we analysed scientific production over the last five years to answer the second research question about the most influential journals, articles, authors, and geographical regions in this field. This analysis revealed the overall stability of published scientific output, with some fluctuations over time, especially in 2020 and 2021, when the COVID-19 pandemic occurred. Notably, 2022 stood out as the period of highest production compared to previous years. However, when analysing the most influential articles, an intriguing pattern emerges: most of them come from 2018. This finding suggests a significant increase in the interest in black tourism during that period, which may have spurred more profound and more impactful research. These findings highlight the importance of examining the quantity and quality of scientific output in a field of study. Although the annual production has remained stable, the analysis of the most influential articles highlights how certain moments in time can be crucial for the development and visibility of a research topic. Thus, we encourage researchers and practitioners interested in black tourism to pay special attention to 2018, to delve deeper into the factors contributing to its relevance in the field, and to continue to monitor the evolution of scientific production in subsequent years to identify possible emerging trends and to keep research in this exciting and significant tourism–cultural field up-to-date.

Finally, the analysis of the conceptual structure map in our study reveals emerging and relevant areas of research in dark tourism. Specifically, the interaction between psychology and dark tourism stands out as one of the most significant emerging areas, suggesting a growing interest in understanding the psychological and motivational aspects of tourists visiting sites associated with death, tragedy, and suffering. In addition, examination of the most frequently occurring words in the literature that are also trend topics highlights the importance of critical concepts, such as "tourism management," "tourism market," "tourism destination," "tourism development," "tourism attraction", and "heritage tourism." These terms reflect the fundamental areas of study in dark tourism, and underline the need to research and understand the management of tourism destinations related to cultural heritage and historical sites of dark interest. Our findings highlight the importance of further exploring the interaction between psychology and dark tourism, as this could shed light on tourists' motivations and emotional experiences in such destinations. Future research should also continue to explore and analyse the key concepts identified in the literature to improve the planning and management of dark tourism, ensuring an appropriate bal-

ance between the preservation of cultural heritage and the sustainable development of these sites.

This study represents a valuable contribution to the literature on dark tourism by providing an intrinsic and comprehensive analysis of the field's current state. The findings offer researchers and practitioners in the tourism sector an overview of the epistemological structure of dark tourism, providing them with a solid knowledge base in this subject area. The analysis allows for a better understanding of the theoretical and conceptual framework of the articles published so far, which is essential for establishing the basis for future research and enriching the academic debate on dark tourism. Furthermore, this study identifies patterns, trends, and gaps in current research, which is essential for researchers interested in the field. Identifying emerging trends and new research areas opens up opportunities to keep dark tourism relevant and up-to-date, adapting to societal changes and travellers' needs. Overall, this article provides a solid platform for the continued development of research in dark tourism. The results and analyses provided have the potential to guide future research efforts and, in turn, contribute to the advancement and evolution of this exciting area of study in the field of tourism and culture.

This article provides a solid basis for future studies and enriches existing knowledge in the field of dark tourism, allowing a better understanding of its dynamics and enabling the implementation of tourism practices that are more responsible and respectful of the historical and cultural memory of dark destinations. However, it is essential to recognise and address the inherent limitations of this methodological approach. One of the main limitations of this study is the restrictions we have imposed from the outset to carry out the analysis. It may therefore be necessary to review the scope and representativeness of the bibliographic databases used to ensure the completeness of the analysis. Some relevant publications may have been omitted because they are not indexed in the selected databases. Finally, by focusing on published literature, this study may only partially reflect the picture of developing or unpublished research, which may influence the overall perception of the field of study. In addition, the scope and representativeness of the literature databases used may need to be reviewed to ensure the completeness of the analysis.

Despite these limitations, this bibliometric article has provided a valuable overview and understanding of the trends and structure of the literature in the field of interest. The development of these future lines of research allows us to answer the ultimate research question. Future research should address these limitations, using complementary approaches and mixed methodologies to obtain a more complete and holistic view of the field studied. Doing so will advance knowledge and understanding of the subject, contributing to the continued development of research in the specific area and its implications for the scientific and professional community.

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