

A bibliometric analysis of length of stay studies in tourism

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Abstract

Despite its importance to both tourism destinations and scholars, there is no record of research via bibliometric analysis of the length of stay (LOS). This paper, therefore, aims to provide a bibliometric analysis of LOS in tourism, based on publications in the Web of Science database (WOS). For this purpose, 60 documents published in top-tier tourism journals were analysed through bibliometric analysis. The research data was processed, and bibliographic display maps were created using the Visualisation of Similarities (VOS) viewer software. This study focuses mainly on 10 parameters, such as top contributing authors, countries and organisations, the most cited articles, the annual number of publications, the co-occurrence of author keywords in papers, the co-citation analysis of authors and journals, and the bibliographic coupling of countries and authors.

Keywords: Length of stay; bibliometric analysis; Web of Science; VosViewer

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Introduction

Research on length of stay (LOS) in tourism destinations has featured in tourism literature since the 1970s (Mak *et al.*, 1977). Since then, many scholars have approached this concept from different perspectives to define the main determinants of LOS (Aguilar & Díaz, 2019; Alegre & Pou, 2006; Atsız *et al.*, 2020; Barros *et al.*, 2008; Bavik *et al.*, 2020; Boto-García *et al.*, 2019; de Menezes *et al.*, 2008; Gokovali *et al.*, 2007; Rodríguez *et al.*, 2018; Thrane, 2016; Thrane & Farstad, 2012; Yang *et al.*, 2011). The general consensus of previous studies is that LOS is crucial for tourism destinations because it is positively linked with high revenues from tourism which, ultimately, depend on increasing the LOS of tourists (Alegre & Pou, 2006; Barros *et al.*, 2010). In addition, some studies have shown that countries face a decrease in average LOS (Alegre & Pou, 2006; Atsız *et al.*, 2020; Barros *et al.*, 2008; Bavik *et al.*, 2020; Gokovali *et al.*, 2007). Previous studies have generated a wealth of knowledge on LOS and its determinants. Thus, a review of this knowledge via a bibliometric analysis can contribute to the relevant literature.

Bibliometric analysis is deemed to be the most appropriate research approach to synthesise all LOS research findings. Zupic and Čater (2015) contend that this approach can be beneficial in terms of examining the most prominent research and mapping the research area without subjective prejudice. Additionally, the research and publications related to the topic can be evaluated more clearly by those interested in the topic (Cobo *et al.*, 201b).

A wide range of studies in tourism and hospitality fields was examined via bibliometric analysis. The studies focused mainly on specific types of tourism topics (Johnson & Samakovlis, 2019; Nusair *et al.*, 2019; Mavric *et al.*, 2021) or journal publications (Merigó *et al.*, 2019; Mulet-Forteza *et al.*, 2019; Vishwakarma & Mukherjee, 2019; Soliman *et al.*, 2021a). Researchers in the tourism sector (Kraus *et al.*, 2020; Liu & Li, 2020; Rosato *et al.*, 2021) who use bibliometric analysis generally obtain their data from the WOS, a high-quality database where more than 24,618 journals are indexed (WOS, 2021). In addition, previous bibliometric studies (Merigó *et al.*, 2019; Mulet-Forteza *et al.*, 2018; Vishwakarma & Mukherjee, 2019) have benefited from various software (i.e. VOS viewer) to analyse publications and research data.

Because of its importance for tourism destinations, the number of publications on LOS has been increasing. However, previous studies have not employed a bibliometric analysis for this research topic. This research, therefore, will attempt to fill the gap in literature by providing greater knowledge about LOS and identifying its evolution. In this study, data was obtained from the WOS and analysed with the help of VOS viewer software which was developed by van Eck and Waltman (2010). The VOS viewer was preferred as this software has proven itself in many academic studies, and it is simple and easy to use. In addition, the VOS viewer is the most frequently used software tool in tourism studies and many other disciplines (Mavric *et al.*, 2021; Öğretmenoğlu *et al.*, 2022).

The rest of the paper is organized as follows: The first part of the study includes a literature review on LOS and a bibliometric analysis, while the research method is presented in the second part. The results of the research will then be presented, with the final part including the conclusion and implications, limitations, and recommendations for future studies.

Literature Review

The Background of LOS

The LOS concept has received scholarly attention over the decades with many researchers approaching the topic from the point of view of demand (Alegre & Pou, 2006). The term LOS has been defined in

many ways. For example, Adongo et al. (2017) defined it as ‘the duration of an individual’s leisure consumption and any other services or activities whose demand is prompted by visiting the destination’ (p. 66). Another study by Atsız et al. (2020) defined LOS as ‘the total nights spent by tourists who accommodated at least one night-time in a single destination and who used a commercial type of accommodation’ (p. 3). In summary, LOS commonly refers to the number of nights spent by visitors at a certain destination rather than multiple destinations (Uysal et al., 1988).

Many researchers have examined the determinants of LOS, which were divided into different categories. For instance, Alén et al. (2014) identified four main categories: socio-demographic variables (i.e. age and gender), lifecycle (i.e. self-perceived economic status and amount of time), travel motivation and travel characteristics (i.e. type of destination, accommodation type, means of travel, and travel activities). Scholtz et al. (2015) collected all variables under two main streams. The first stream comprises internal determinants such as socio-demographic variables (i.e. age, gender, occupation, income, family composition), travel behaviour of tourists (i.e. activities, accommodation, transport type, group size), and travel motives. The second stream includes external determinants such as destination image, distance to travel, services, amenities offered at the destination, and climate or seasonality. Finally, Rodríguez et al. (2018) determined three main categories: personal characteristics (i.e. age, gender, education, nationality, and revenue), travel features (i.e. aim of trip, season of travel, how the trip was organised, travel cost, and mode of transport), and destination attributes (i.e. quality of service, cultural attributes, nature, climate, satisfaction, and loyalty).

Bibliometric Analysis

It is necessary to review and summarise academic knowledge accumulated on a subject over time. In this context, researchers use approaches such as a review (e.g. Ivanov & Zhechev, 2012; Uygur & Öğretmenoğlu, 2018; Ivanov et al., 2019) or a bibliometric analysis (e.g. Johnson & Samakovlis, 2019; Nusair et al., 2019; Mavric et al., 2021) to summarise the data. Pritchard (1969), the pioneer of bibliometric analysis, defined this method as an ‘application of statistical and mathematical methods set out to define the processes of written communication and the nature and development of scientific disciplines by using recounting techniques and analysis of such communication’ (p. 348). Additionally, it refers to ‘the quantitative study of physical published units, or of bibliographic units, or of the surrogates for either’ (Broadus, 1987, p. 376). All areas, disciplines or fields that have generated knowledge can apply this method and it is convenient to examine research constructed on the quantitative examination of data ensured by relevant literature (Sánchez et al., 2017). The main objective of this method is to summarise the major features of relevant literature, to comprehend previous research into a specific area, and to estimate the future of the topic that was tackled (Daim et al., 2006). Additionally, this approach can be extremely useful for researchers to understand recent trends within a specific area (Zhang & Liang, 2020).

This analysis considered an extensive range of bibliometric outputs, such as categories sought, the year and name of publication, productive authors, organisations and countries, samples and citation numbers (Rodríguez-López et al., 2020). Additionally, this analysis was applied to data on a specific research area gathered from previously published sources or research, including books, reference books, proceedings, dissertations, and journals (Ball, 2017). The analysis also illustrates performance and science mapping of these publications (Zupic & Čater, 2015).

The current literature includes various techniques of the bibliometric method, which were combined by Koseoglu et al. (2016) in three groups – review, evaluative, and relational. The review technique includes a systematic review, a meta-analysis, and a qualitative approach; this is known as traditional

and basic bibliometric analysis. These practices use a qualitative research line to evaluate the development of the disciplines and provide a subjective assessment (Koseoglu *et al.*, 2016). To overcome this issue, the inclusion of evaluative and relational techniques is recommended.

Bibliometric analysis is used in various fields of the social sciences such as management and organisation (Zupic & Čater, 2015), marketing (Nicolas *et al.*, 2020), banking and finance (Biancone *et al.*, 2020), and political science (Chi, 2012), and it is preferred by researchers in the field of tourism.

Bibliometric Studies in Tourism

The bibliometric method is widely used in tourism and hospitality research, with the initial research conducted by Weaver & McCleary (1989). Their study was chosen as a starting point for bibliometric analysis in tourism (Sánchez *et al.*, 2017).

Bibliometric analysis has been used in a wide range of areas, such as in wine tourism (Sánchez *et al.*, 2017), food and gastronomy (Okumus *et al.*, 2018), adventure tourism (Cheng *et al.*, 2018), smart tourism (Johnson & Samakovlis, 2019), sport tourism (Jiménez-García *et al.*, 2020), and slow tourism (Mavric *et al.*, 2021). Additionally, bibliometric studies by Martorell *et al.* (2019) and Vishwakarma and Mukherjee (2019) examined journal articles, book reviews, research notes and other publications published during a specific period. These studies used different bibliometric techniques to examine the relevant area. The main applied bibliometric techniques are basic content analysis, a quantitative systematic literature review, a co-citation analysis, a co-word analysis, a meta-analysis, and a co-citation visualisation analysis.

Further investigation is required to better understand the huge amount of research and emerging themes in tourism. According to the WOS database, there are 145 bibliometric publications relating to a variety of tourism topics. Despite several LOS studies in different destinations, bibliometric research is not included in the relevant literature. This research, therefore, will support the relevant literature by providing an understanding of LOS studies.

Research Methodology

This study aims to review the LOS literature using bibliometric analysis. Data can be easily obtained from databases such as Scopus (Niñerola *et al.*, 2019; Padrón-Ávila & Hernández-Martín, 2020; Soliman *et al.*, 2021b) and WOS (Barrios *et al.*, 2008; Merigó *et al.*, 2020; Mavric *et al.*, 2021). Pestana and Parreira (2019) and Sánchez *et al.* (2017) combined both databases in their research. However, the WOS database was considered convenient for this study for several reasons. First, the aim is to reduce the possibility of analysing the same studies more than once. For example, a journal can be scanned in both Scopus and WOS and the researcher may not notice it (Mavric *et al.*, 2021). Second, WOS is one of the world's leading databases (Merigó *et al.*, 2015) and it has journals with high impact factors (Yu *et al.*, 2019). Third, bibliometric analysis conducted by many tourism researchers (e.g., Merigó *et al.*, 2015; Yu *et al.*, 2019; Mavric *et al.*, 2021) used the WOS database (Mavric *et al.*, 2021; Öğretmenoğlu *et al.*, 2022).

The data was obtained on 1 February 2021. 'Length of stay' was written in the 'title' section of the search engine of the WOS database, and 7,186 documents were obtained from this search. It was found that LOS studies were not only confined to hospitality, leisure, sport, and tourism, but included WOS categories for surgery, medicine, health care, and sciences. Therefore, only the hospitality, leisure, sport, and tourism categories were marked, and the search was repeated. As a result, 64 documents were obtained. However, four documents were excluded, and 60 articles were determined as a final data

corpus (Figure 1). In addition, the search was carried out for articles published in the period 1975 to 2020.

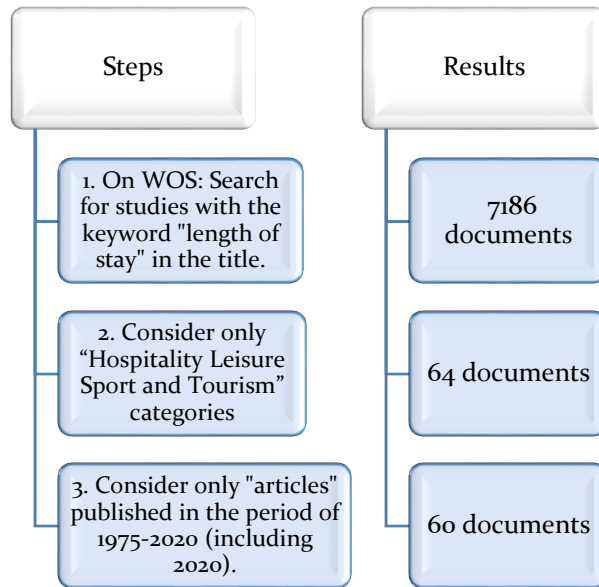


Figure 1. Flow chart of the selection process of documents

Parameters such as the annual number of publications, the most productive authors and organisations, the most contributing countries, and the most cited documents were considered. The parameters were based on similar studies by Merigó *et al.* (2019) and Vishwakarma and Mukherjee (2019). In addition, science mapping analysis was conducted since this is an important tool for analysing data in bibliometric studies (Andreu *et al.*, 2020; Yoopetch & Nimsai, 2019).

Science mapping analysis helps researchers to create bibliometric maps that determine how specific research fields are conceptually, intellectually and socially formed (Cobo *et al.*, 2011a). Various software such as CiteSpace II (Chen, 2006), Bibexcel (Persson *et al.*, 2009), and VOS viewer (van Eck & Waltman, 2010) are used to create science maps. This study used VOS viewer, which is frequently used by tourism researchers (Martorell Cunill *et al.*, 2019; Vishwakarma & Mukherjee, 2019; Yoopetch & Nimsai, 2019). The co-occurrence of author keywords (Callon *et al.*, 1983), bibliographic couplings (Kessler, 1963, 1965), and co-citations (Small, 1973), were reviewed with the help of VOS viewer. These terms are explained below.

- Co-occurrence of author keywords: keywords are the main terms that emphasise the content of the studies. They help authors who research in a similar area to find relevant articles (Tripathi *et al.*, 2018). The co-occurrence of author keywords determines the most widespread keywords used in the papers (Mulet-Forteza *et al.*, 2019) and it is a beneficial tool for exploring further research (Liu & Mei, 2016).
- Bibliographic couplings: this occurs when two papers cite the same third paper, and is an approach more suited to institutions and countries (Mulet-Forteza *et al.*, 2018).
- Co-citation: this happens when two papers pick up a citation from the same third paper. Journals, articles, and authors can be reviewed with this approach (Mulet-Forteza *et al.*, 2019).

These techniques are used to analyse the studies through the bibliometric method (i.e. Garrigos-Simon *et al.*, 2018a; Garrigos-Simon *et al.*, 2018b; Mulet-Forteza *et al.*, 2019).

Results

Annual Number of Publications

Figure 2 shows the annual number of papers published relating to LOS, with the first paper published in 2006. In 2012, LOS received a great deal of scholarly attention, while there was a marked decline in the number of publications in 2013 and 2014. Although current research has focused on the impact of COVID-19 on tourism and hospitality, interest in LOS has not diminished, with most research articles on LOS published in 2020.

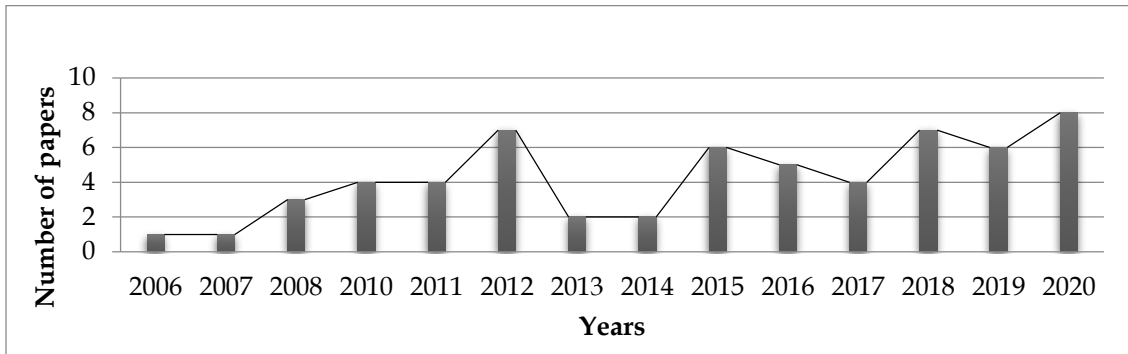


Figure 2. *The annual number of publications related to LOS*

The Most Productive Authors and Organisations

Christer Thrane (h-index = 15) has the highest number of published papers about LOS (seven papers), with one paper published in 2011 on tourism management. Eivind Farstad had two papers in 2012 on tourism management and tourism economics, two papers in 2015 on tourism economics, and two in 2016 on tourism management and tourism economics. Carlos Pestana Barros (h-index = 35) is the second author to have published the most studies on LOS, with three papers. He published one article in 2008 on tourism analysis, in conjunction with Antonia Correia and Geoffrey Crouch. He also published two articles in 2010 on annals of tourism research and tourism management.

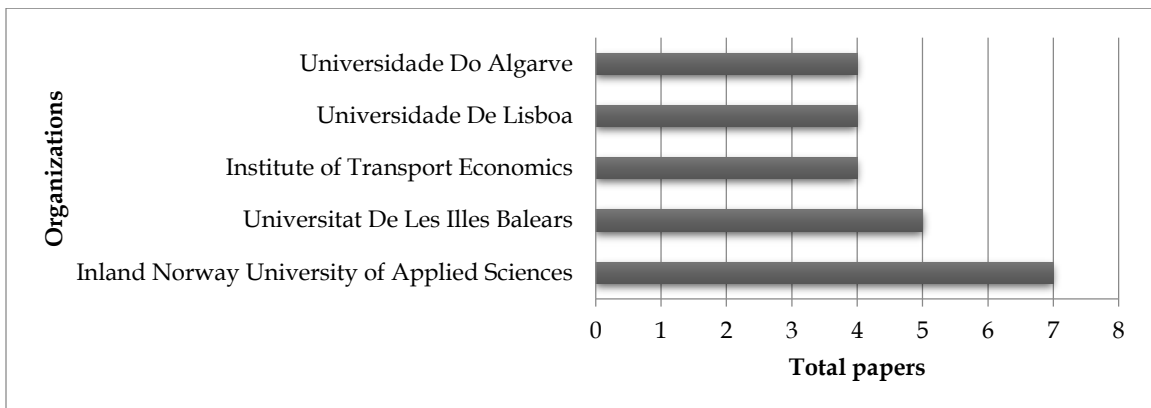


Figure 3. *Organisations that published the most documents on LOS*

Note(s): The top five organisations that published the most documents on LOS were selected.

European countries such as Norway, Spain, and Portugal are in the lead in an examination of the most productive authors and institutions, which shows that European authors attach importance to LOS.

Figure 3 shows the institutions that have published the most studies on LOS. The Inland Norway University of Applied Sciences, with seven papers, was the most productive institution, followed by Universitat De Les Illes Balears, with five.

The Most Contributing Countries

In this section, various countries are analysed in terms of the number of papers published on LOS. Figure 4 shows the distribution of countries contributing to LOS literature. The intensity of the colours indicates the country with the most LOS articles. Only countries with at least two publications are included.

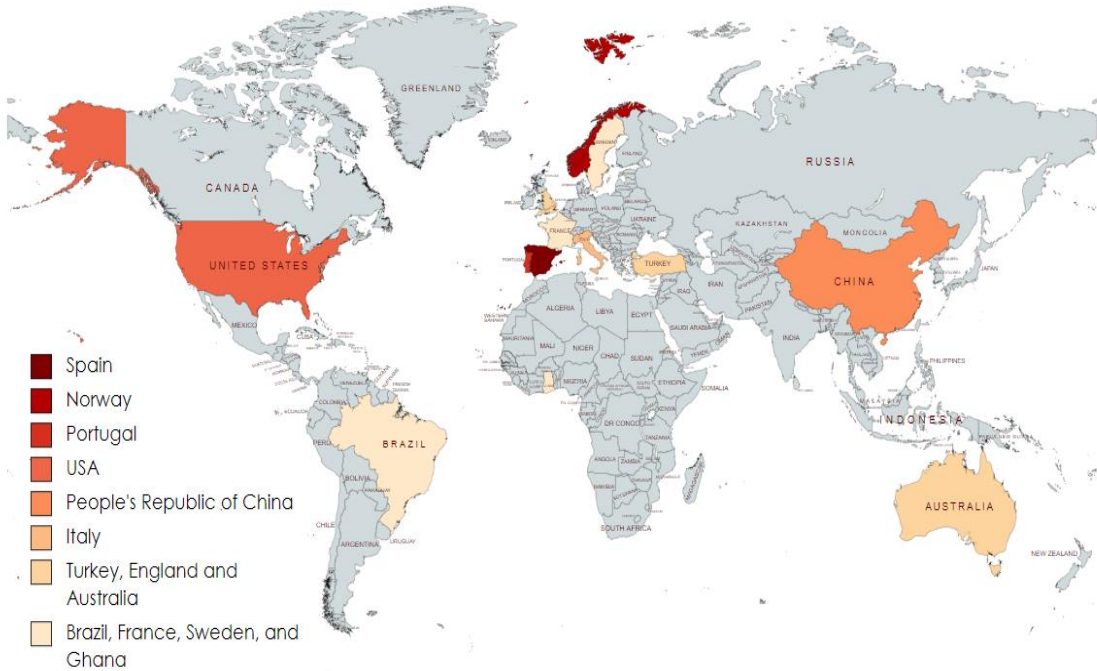


Figure 4. *The distribution of countries contributing to LOS literature*

Source: This map was created by the authors via mapchart.net.

The largest contributor, Spain, published 18 papers (30%). Norway and Portugal are ranked second and third, contributing 10 (16.6 %) and eight papers (13.3 %), respectively. The USA is ranked in fourth place, with the People’s Republic of China in fifth and Italy sixth. In seventh place, with three studies each, are Turkey, England, and Australia, while in eighth place, with two papers each, are Brazil, France, Sweden, and Ghana. It is worth noting that most of the countries where research was conducted on LOS, (e.g., Spain, Turkey, the USA, England, the People’s Republic of China, Italy, and France) are among the top 10 destinations that attract the most international tourists (UNWTO, 2020b).

In summary, six of the most contributing countries are in Europe, two in Asia, and two in America (North and South). In addition, there is only one country from Africa and one in Oceania.

The Most Cited Documents (Top 20)

This section examines the most cited documents published on LOS according to the WOS database. Table 1 presents the top 20.

Table 1. *The most cited documents related to LOS*

Rank	Authors	Title	Journal	Document Type	Method	WOS Citations ¹	Google Scholar Citations ¹
1	Gokovali <i>et al.</i> (2007)	Determinants of length of stay: A practical use of survival analysis	Tourism Management	Article	Quantitative	159	315
2	Alegre and Pou (2006)	The length of stay in the demand for tourism	Tourism Management	Article	Quantitative	150	338
3	Barros and Machado (2010)	The length of stay in tourism	Annals of Tourism Research	Article	Quantitative	149	256
4	Barros <i>et al.</i> (2010)	The length of stay of golf tourism: A survival analysis	Tourism Management	Article	Quantitative	96	218
5	Martinez-Garcia and Raya (2008)	Length of stay for low-cost tourism	Tourism Management	Article	Quantitative	96	207
6	Thrane and Farstad (2011)	Domestic tourism expenditures: The non-linear effects of length of stay and travel party size	Tourism Management	Article	Quantitative	93	186
7	Alegre <i>et al.</i> (2011)	A latent class approach to tourists' length of stay	Tourism Management	Article	Quantitative	76	122
8	De Menezes <i>et al.</i> (2008)	The determinants of length of stay of tourists in the Azores	Tourism Economics	Article	Quantitative	74	125
9	Alén <i>et al.</i> (2014)	Determinant factors of senior tourists' length of stay	Annals of Tourism Research	Article	Quantitative	67	137
10	Thrane (2012)	Analyzing tourists' length of stay at destinations with survival models: A constructive critique based on a case study Article	Tourism Management	Article	Quantitative	50	84
11	Ferrer-Rosell <i>et al.</i> (2014)	Package and no-frills air carriers as moderators of length of stay	Tourism Management	Article	Quantitative	49	68
12	Peypoch <i>et al.</i> (2012)	The length of stay of tourists in Madagascar	Tourism Management	Article	Quantitative	48	79
13	Barros <i>et al.</i> (2008)	Determinants of the length of stay in Latin American tourism destinations	Tourism Analysis	Article	Quantitative	45	73
14	Salmasi <i>et al.</i> (2012)	Length of Stay: Price and Income Semi-	International Journal of	Article	Quantitative	44	61

Rank	Authors	Title	Journal	Document Type	Method	WOS Citations ¹	Google Scholar Citations ¹
		Elasticities at Different Destinations in Italy	Tourism Research				
15	García-Sánchez <i>et al.</i> (2013)	Daily expenses of foreign tourists, length of stay and activities: evidence from Spain	Tourism Economics	Article	Quantitative	37	62
16	Machado (2010)	Does destination image influence the length of stay in a tourism destination?	Tourism Economics	Article	Quantitative	37	62
17	Thrane and Farstad (2012)	Tourists' length of stay: the case of international summer visitors to Norway	Tourism Economics	Article	Quantitative	35	62
18	Wang <i>et al.</i> (2012)	Factors contributing to tourists' length of stay in Dalian north-eastern China A survival model analysis	Tourism Management Perspectives	Article	Quantitative	34	44
19	Santos <i>et al.</i> (2015)	Length of Stay at Multiple Destinations of Tourism Trips in Brazil	Journal of Travel Research	Article	Quantitative	32	59
20	Yang <i>et al.</i> (2011)	Determinants of Length of Stay for Domestic Tourists: Case Study of Yixing	Asia Pacific Journal of Tourism Research,	Article	Quantitative	28	47

Remarks: ¹ Data were collected on 12 February 2021.

The most cited paper was published in 2007 by Gokovali *et al.* It currently has more than 156 citations according to the WOS. The 20 most-cited documents are mainly research articles, and the quantitative method was used in most of these studies. It was also found that these studies were tested with a methodological approach. In the existing studies investigating LOS, survival analysis was the most utilised model (Bavik *et al.*, 2020). In addition, the logit model (Alegre & Pou, 2006), the truncated poisson model (Alegre *et al.*, 2011), the negative binomial model (Alén *et al.*, 2014), the poisson regression model (Bavik *et al.*, 2020), and ordinary least squares (OLS) (Thrane & Farstad, 2012) were other models used to examine LOS determinants.

Co-occurrence of Author Keywords

The analysis of the co-occurrence of author keywords is given in Figure 5. It was determined that 209 keywords were used in the publications examined. Among these keywords, 23 were repeated at least twice (also see Table 2). According to Figure 5, the most frequently used 10 keywords are 'length of stay', 'survival analysis', 'duration models', 'tourism', 'survival models', 'duration model', 'destination image', 'tourist expenditure', 'segmentation', and 'OLS regression'. The timelines of these keywords also are given in Figure 5. Until 2015, keywords such as 'duration models' and 'survival analysis' were prominent,

while since then, keywords such as ‘distance’, ‘tourist expenditure’, ‘negative binomial model’, ‘revenue management’, and ‘destination management’ have grown in prominence.

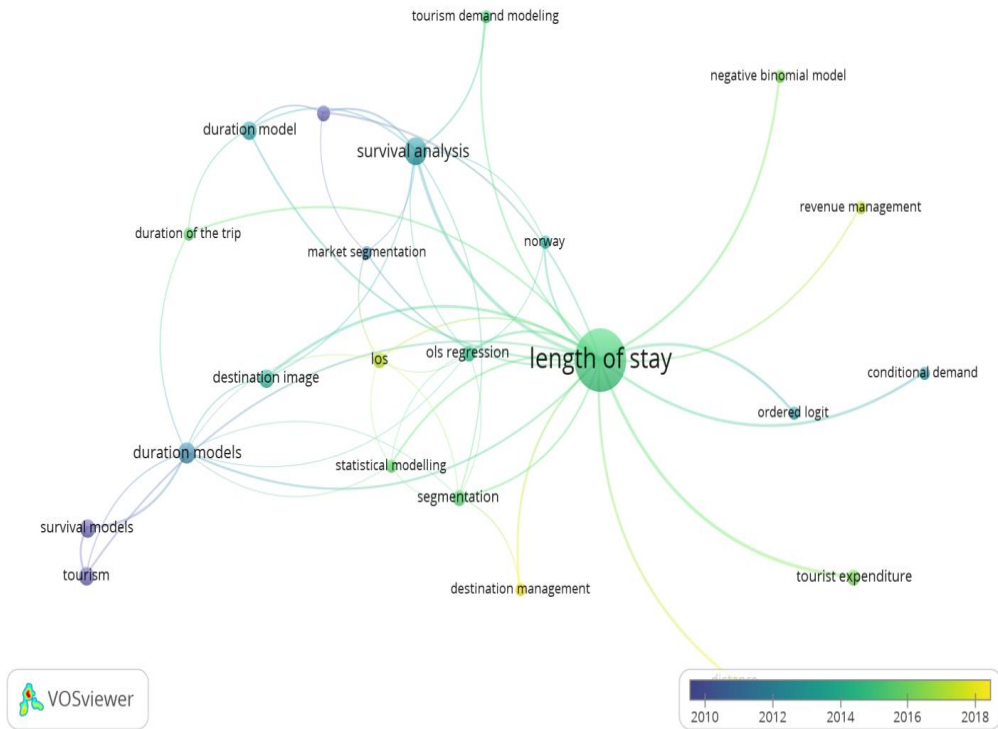


Figure 5. Co-occurrence of author keywords in papers

Table 2. The most common keywords in LOS' papers

Rank	Keyword	Occurrences	Total link strength
1	Length of Stay	46	53.00
2	Survival Analysis	9	20.00
3	Duration Models	5	12.00
4	Tourism	4	4.00
5	Survival Models	4	4.00
6	Duration Model	4	8.00
7	Destination Image	4	5.00
8	Tourist Expenditure	3	3.00
9	Segmentation	3	9.00
10	Ols Regression	3	9.00
11	Economic Factors	3	9.00
12	LOS	3	7.00
13	Tourism Demand Modelling	2	4.00
14	Statistical Modelling	2	6.00
15	Ordered Logit	2	2.00
16	Norway	2	4.00
17	Negative Binomial Model	2	2.00

Rank	Keyword	Occurrences	Total link strength
18	Market Segmentation	2	4.00
19	Duration of The Trip	2	4.00
20	Distance	2	4.00
21	Destination Management	2	3.00
22	Conditional Demand	2	2.00
23	Revenue Management	2	1.00

Co-citation Analysis of Authors

Co-citation analysis of authors is used in bibliometric studies as an influential method for identifying the intellectual structure of a research domain. It is used to determine the frequency with which any study of an author is co-cited with another author in the references of citing papers (Jeong et al., 2014). A total of 1,316 authors were cited by LOS papers. Figure 6, the co-citation map of the most cited authors, shows that Thrane, C. (with 104 citations), Barros, C. P. (103 citations), Alegre, J. (87 citations), Gokovali, U. (49 citations), and Gomes de Menezes, A. (46 citations), ranked first to fifth, respectively.

In addition, three clusters of red, green, and blue were obtained. Each colour indicates a cluster and interrelated authors are collected in the same cluster. Barros, C.P., Gomes de Menezes, A., and Martinez-Garcia, E., are in the blue cluster. In green are Thrane, C., Salmasi, I., and Wang, E.D., while the red cluster has Gokovali, U., Alegre, J., and Kozak, M.

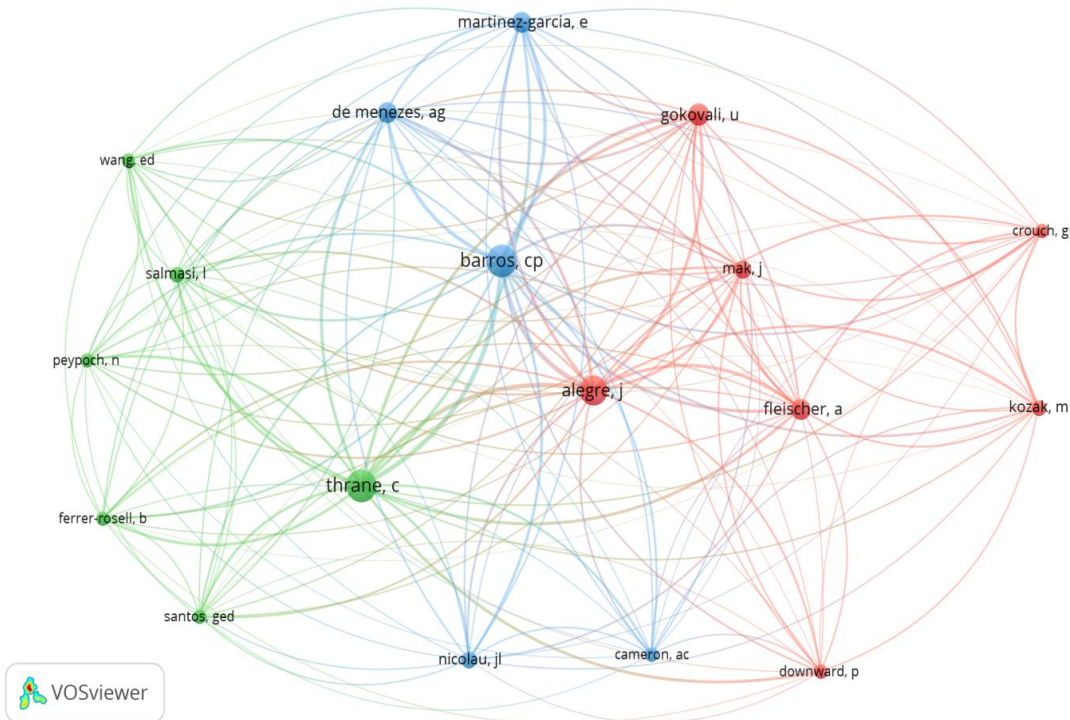


Figure 6. Co-citation network map of authors

Note(s): The minimum number of citations of an author selected is 20.

Co-citation Analysis of Journals

In this analysis, the size of a node indicates the number of published documents in the journal, and a short distance between two journals points to a bigger citation density (Garrigos-Simon *et al.*, 2018b). VOS viewer discovered one main (red) cluster (Figure 7). This cluster contains journals such as Tourism Management (the number of citations, 553, and total link strength, 322.24), Annals of Tourism Research (the number of citations, 306, and total link strength, 228.19), Tourism Economics (the number of citations, 184, and total link strength, 151.90), and Journal of Travel Research (the number of citations, 169, and total link strength, 137.89). In addition, as shown in Figure 7, there appears to be links between journals.

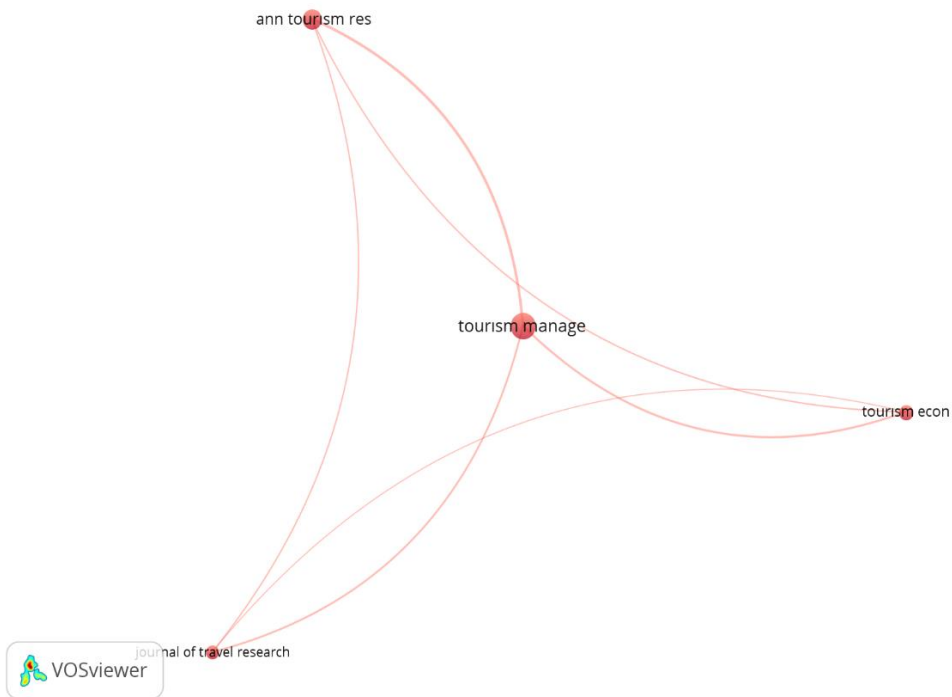


Figure 7. Co-citation network map of journals

Note(s): The minimum number of citations of journals selected was 100

Bibliographic Coupling of Authors

Bibliographic coupling is utilised to complement the co-citation analysis. It presents a different appearance of a topic or authors' relatedness. Co-citation demonstrates that two papers appear together in the reference list of another paper. However, bibliographic coupling counts the number of references a group of documents has in common; for example, article A and article B are coupled if both cite article C (Garrigos-Simon *et al.*, 2018b, p. 14). Figure 8 shows the bibliographic coupling of authors. According to the strength and number of documents, the list is headed by Christer Thrane (122.30 total link strength and seven documents).

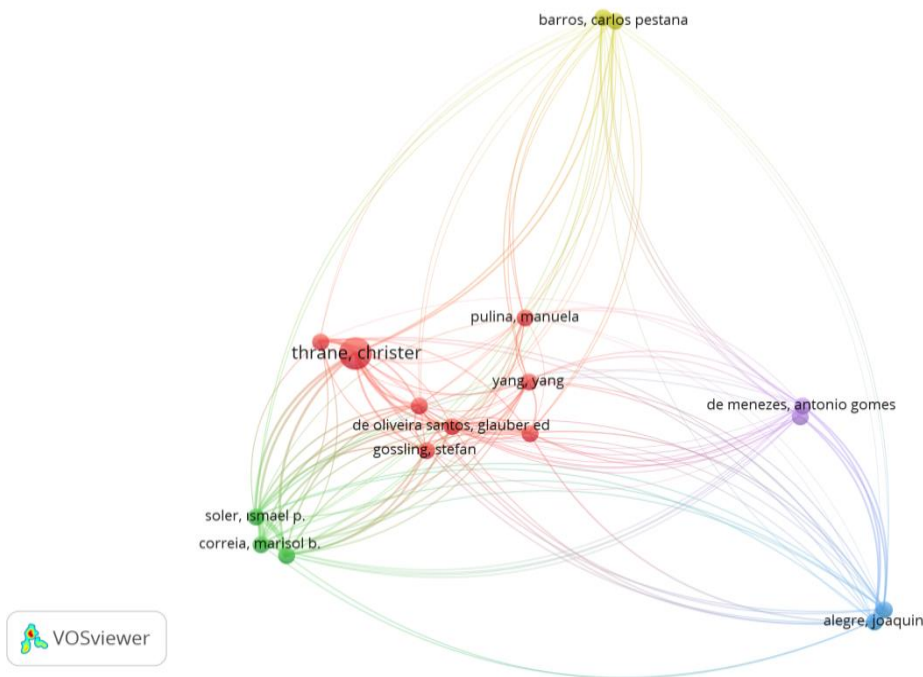


Figure 8. *Bibliographic coupling of authors*

Bibliographic Coupling of Countries

In this section, the significance of the countries is represented by the size of the circles. The colours and places of the circles have been used to determine the clusters (Vishwakarma & Mukherjee, 2019). Figure 9 shows the bibliographic coupling of countries on LOS with a threshold of two documents. From this analysis, four clusters were obtained as blue, red, yellow, and green. Switzerland and Norway are clustered in blue, with Spain, Portugal, and France in red, China, America, and England in green, and Italy and Turkey in yellow. As shown in Figure 9, Spain has the largest network on the map, and it has the largest node. This means that it is the most productive country for LOS literature. In addition, Norway and Italy have a significant position in LOS literature.

Overall Evaluation of LOS Tourism Research

In this section, an overall evaluation of LOS studies will be presented briefly with regards to general determinants, research design, destination or tourist segment, data collection, and the most used data analysis techniques. Although all studies examined the main determinants of LOS, there is little research in the relevant literature on forecasting, estimating, and global trends of LOS. There is a consensus that LOS is a vital topic in the research domain of tourism demand and economics. Additionally, there is common ground among researchers that the determinants tested are destination-specific and should be examined in other parts of the world.

The frequently used determinant is socio-demographic characteristics. This is used in different forms in some studies, such as ‘individual characteristics’ or ‘demographic information’. All studies have tested these variables to capture the main determining characteristics for the LOS literature. In addition, some

variables (i.e. age, gender, education, and marital status) were the most utilised socio-demographic characteristics in LOS studies. The second determinant was trip characteristics, including trip purpose, motivation, type of accommodation, trip budget, expenditure, travel mode, and party size. Since these characteristics are destination-specific, many scholars have examined the role of destination or activity attributes in the LOS for tourists. For example, cultural, golf, volunteer tourism, or general destination attributes were examined in previous research.

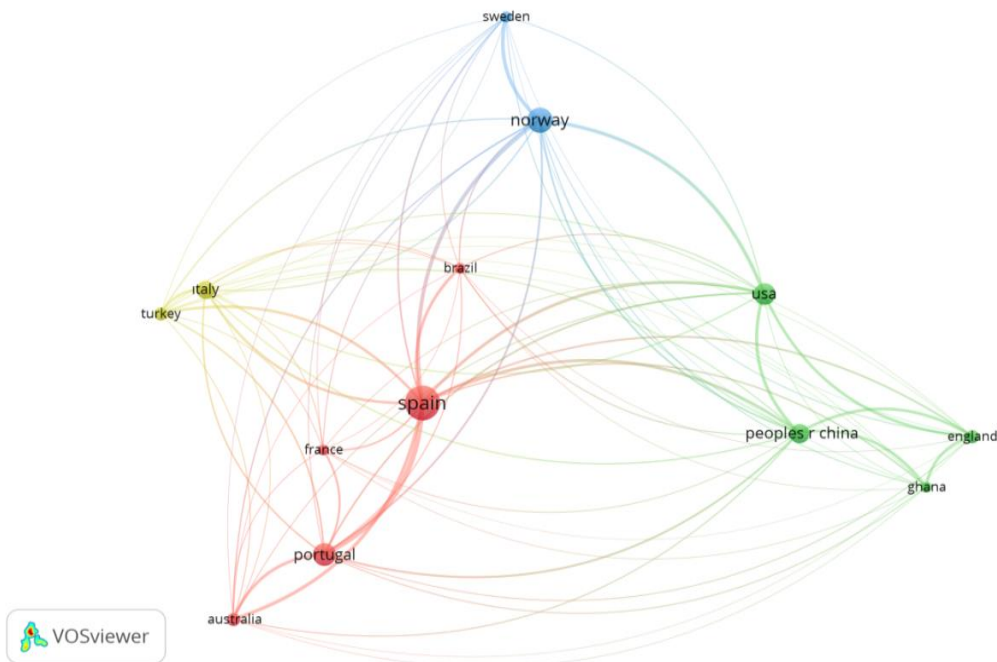


Figure 9. *Bibliographic coupling of countries*

According to the research design approach and data collection of LOS, only two of 60 studies have used a qualitative approach. These studies considered online documents to illustrate the current debate on LOS. A total of 58 papers have adopted a quantitative research approach by utilising a self-administered questionnaire. However, some have used surveys by other institutions in their research.

The data was analysed through a wide range of models or techniques, such as survival or duration models, negative binomial regression, zero-truncated negative binomial regression, ordered logit regression, and partial least squares structural equation modelling. Among these techniques, the most used model was the survival or duration modelling. Although it has been widely used in previous studies, Thrane (2012) criticised this method because it fails to explain the nature of LOS determinants in the analysis. Therefore, he suggested that ordinary least squares (OLS) regression is the best way to examine the determinants of the LOS of tourists. Following this criticism, six papers have used OLS regression in their research to predict the impact of determinants on LOS.

Conclusion and Implications

Tourism scholars have paid considerable attention to bibliometric research in recent years. Many topics were examined by bibliometric analysis in the existing literature, including family tourism, food tourism, heritage tourism, slow tourism, and others. In particular, some bibliometric research focused specifically on different types of tourism, such as social media research in tourism (Nusair *et al.*, 2019), knowledge development of smart tourism (Johnson & Samakovlis, 2019), and the finances of tourism (Jiménez-Caballero & Polo Molina, 2017). Many of these studies can support researchers in organising previous knowledge on the topic, and they can also unite and capture the future direction of research trends. Additionally, research on the LOS of tourists in different destinations has contributed to the relevant literature, and has brought enlightenment on the role of LOS for operators in holiday destinations and for economic studies (Bavik *et al.*, 2020). Despite the importance of bibliometric studies and LOS in tourism, no studies examined the LOS literature through bibliometric analysis. Therefore, this research is original and unique to the relevant literature. The research findings will provide significant knowledge for scholars investigating the LOS concept.

Theoretical Implications

The findings of this research show that the annual number of publications on LOS has differed over the years, with 2012, 2018, and 2020 being the most productive years, which may indicate that attention to this topic will increase in future. Additionally, considering that the LOS of tourists is expected to decrease (Atsız *et al.*, 2020), authors will pay more attention to the determinants of LOS.

The most prolific authors and organisations are from Europe, with Spain being the largest contributor (18 articles). According to UNWTO (2020a), Spain faces a decrease in the LOS of tourists. As a short-haul destination, it will endeavour to find ways to increase the LOS, so more publications from Spain and other short-haul destinations are expected in future research.

Other results from this study are summarised in the following section. 'Determinants of length of stay: A practical use of survival analysis', published in 2007 by Gokovali *et al.*, is the most cited paper in the WOS relating to LOS. According to the co-occurrence of author keywords in papers, 'length of stay', 'survival analysis', 'duration models', 'tourism', 'survival models', 'destination image', 'tourist expenditure', 'segmentation', and 'OLS regression' are top keywords in LOS articles. Research on LOS is regularly cited in top-tier journals according to a co-citation analysis of journals. The research findings indicate that Tourism Management, Annals of Tourism Research, Tourism Economics, and the Journal of Travel Research were the most important cited journals, and this research topic has been read by a considerable number of tourism scholars.

Managerial Implications

This research has some implications for managers of holiday destinations that they should consider when devising LOS strategies. Most of the studies generally tested the main determinants of LOS and explored some major determinants that may have a considerable role in increasing the LOS of tourists. The literature emphasises that longer visits lead to more expenditure in a destination and in tourism-related businesses (Alén *et al.*, 2014). Therefore, it is indicated that managers of holiday destinations and researchers will focus more on this issue in some destinations. Additionally, numerous destinations have experienced a decline in LOS (Atsız *et al.*, 2020). To overcome this, it is suggested that holiday destination managers should investigate which factors impact the LOS of tourists and promote their destination based on these determinants. Alternatively, they should segment tourists according to the LOS determinants to better promote their attractions. Previous studies on different destinations will provide important pointers for them, particularly for destinations facing a sharp drop in LOS. This paper

only mapped out the fundamental results related to LOS. A better managerial outcome would be assured by every holiday destination investigating the determinants of LOS.

Limitations and Future Research Directions

This research is not free from limitations and opens a door for forthcoming studies. First, the paper considered all journals that are indexed in WOS by examining bibliometric and visualisation analysis. Thus, future research can use other methods for investigating existing literature, such as meta-analysis or conventional content analysis. Second, the paper only regarded articles from the WOS database. Future studies can overcome the issue by tackling the Scopus database. Third, in this study, data was analysed by VOS viewer. Future studies may analyse with different software, such as CiteSpace II and Bibexcel. Finally, only articles were taken into consideration in this study, so future research may include different documents, such as conference papers and book chapters.

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