

## Article

# Are Social Media Data Pushing Overtourism? The Case of Barcelona and Chinese Tourists

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**Abstract:** Overtourism spoils the good economic and social results produced by the tourism sector, causing reductions in the quality of service of the tourist destination and rejection by the local population. Previous literature has suggested that social networks and new electronic channels could be accelerators of the process of overcrowding destinations; however, this link has not been established. For this reason, in this exploratory study, the influence of social networks on overtourism is analysed using Barcelona as a base, as Barcelona is a massively popular destination in the country that is second in the world in reception of tourists to Spain. This study is also focused on Chinese tourism, which brings large numbers of tourists and presents great economic potential. Two types of study have been used: big data techniques applied to social media with sentimental analysis, and analysis of travel packages offered in China to travel to Spain. Relevant results are obtained to understand the influence of social networks on the travel behaviour of tourists, possible contributions to overtourism, and recommendations for the management of tourism.

**Keywords:** overtourism; social media; overcrowding

## 1. Introduction

Today, there are two contradictory trends in tourist destinations. On the one hand, given the benefits associated with tourism in terms of economy and employment, among others, tourist destinations compete against each other to attract more visitors. On the other hand, new tourism phenomena, such as low-cost transportation and short rental platforms, are increasing demand in some traditional tourism destinations. This situation has led to citizens' rejection of tourism [1]. This fight has provoked, especially in the last two years, citizens against tourists in Barcelona. These conflicts have occurred in other traditional tourist cities in Europe, such as Paris, London, Venice, and Rome [2]. This phenomenon has been called overtourism. The main cause, but not the only one, for overtourism is the large number of arrivals. This results in overcrowding of infrastructures and public spaces, which leads to a negative perception of tourism from the population. Despite the growing importance of this phenomenon, overtourism is not a new phenomenon because, since the 60s, some authors have warned about the negative externalities of tourism for citizens [3]. In fact, these authors analysed the causes and impacts of overtourism in thirteen European countries and asserted that overtourism is a multidimensional problem that does not have a single nor easy solution. These authors pointed out that overtourism had four main causes in addition to the number of visitors: 1. Travellers' negative behaviour; 2. Overuse of the public and private spaces such as shopping centers or restaurants; 3. Overuse of citizen natural resources such as water or beaches; and 4. The irruption of low-cost transportation companies and platform economy.

Some of the consequences derived from overtourism include the increase in price of hospitality, tourist attractions and housing; increased insecurity and the disruption of citizens' lifestyle; and the overuse of resources and an increase in waste generation [2,3]. Consequently, support for tourism has declined among the population [1].

Therefore, exploring how tourists choose a certain destination is critical to attracting more visitors [4]. According to previous research [5], there are four main sources of information about certain destinations. These sources are: 1. Information provided by destinations (e.g., promotional brochures); 2. Information provided by distribution channels such as travel agencies or tour operators; 3. Information provided by others, so-called word of mouth; and, 4. real personal experiences at the destinations.

Word of mouth (WoM) is more effective than information provided by destinations and traditional distribution channels [6]. In this sense, social media allow rapid expansion of WoM with regard to opinions about and experiences in a certain place [7]. This information, positive or negative, has an influence on tourists' thinking [8]. Thus, positive social media information creates in tourists a desire to visit certain destinations and places, while negative information could inhibit such desires. Therefore, certain destinations could "die of success" due to a large and uncontrolled increase in touristic flows.

Alonso-Almeida and Ribeiro de Almeida [9] analysed how travellers used social media during the travel decision-making process. The authors found that social media are used for different purposes, such as to collect and share information about places and services, to comment on different experiences and, above all, to be in contact with others. Nevertheless, the link between social media and overtourism has not yet been studied to our best knowledge.

Therefore, this exploratory paper will analyse social media information based on sentiment analysis to further examine the role of social media in overtourism. Sentiment analysis is useful for two main reasons. First, information sharing on social media is spontaneous and usually more credible than review information [7]. Second, social media information is richer than survey information because it can contain different types of information—words, symbols, and photos, among other elements [9]. Therefore, it provides more information than simply a value for a certain aspect of a destination [10].

The following section begins with a literature review focused on the role of social media and travel behaviour, followed by an analysis of Chinese travellers in two aspects, one regarding their use of social media and the other regarding travel behaviour, especially in Spain. Then, a description of and justification for the methodology will be presented, and later the exposition and discussion of the results. Finally, conclusions and some recommendations for public policy will be proposed.

## 2. Literature Review

### 2.1. Social Media and Travel Behaviour

The increase of the use of social media is changing communication and human relationships in the daily lives of people as well as how destinations promote themselves and communicate with potential tourists. [11] assert that with the increasing use of social media, users and potential customers can now constantly use multiple platforms such as blogs, social networks or consumer peer opinion platforms, to share experiences lived with products and services, creating digital content full of emotions and personal opinions.

Social media creates opportunities for tourists to participate in the production and consumption of travel experiences, as so-called "prosumers" [12] (p. 7), which allows more active relationships among the industry, destinations, and travellers. According to Mangold and Faulds [13], internet-based social media have made communication between thousands of people possible. The same authors consider social media a hybrid of promotional tools, as they enable companies and destinations to communicate directly to their clients as well as customers to talk directly to one another. Thus, social media platforms allow tourists to digitize and share online knowledge [14,15] and record and share emotions and experiences in real time [16]. Therefore, social media offer new ways of social interaction with more people than the small group belonging to one's family and regular circle of friends.

Pan et al. [17] analysed travel blogs and found this type of information is inexpensive, richer, and more authentic than unsolicited customer feedback. In fact, travellers who had visited a place usually had a positive image of it and used to emphasize its functional attributes [18]. Thus, user-generated content (UGC) provokes emotions regarding travel experiences and feelings of knowledge of the destination on readers [19]. In addition, social media allows the free sharing of personal opinions without any interference or external influence [20]. In this sense, Abirami and Askarunisa [21] asserted that UGC offers a great level of precision of the user's feeling about a specific site, whether positive or negative, negative comments being more useful than positive ones because these are not expected and few, due to the strength of the negative emotions shown in social data [22]. Negative comments with very emotional expression will result in lowered perceived helpfulness. In contrast, positive comments may create desire wishes to visit certain places. In accordance, Claster et al. [23] analysed tweets from Thailand, Mexico, and Sri Lanka and discovered tangible, actionable, and beneficial knowledge for predicting tourist movements and analysis for the tourism and hospitality industry in any location.

Today, social media are part of our daily lives, and many people use them to search, share, and be in contact with others, and as stated by Litvin et al. [24], they have transformed the nature of communication among people, particularly travellers. Jacobsen and Munar [16] state that social media are increasingly relevant as part of tourism practices affecting destinations and businesses. Following this reasoning, Lim et al. [19] asserted that UGC influences the decision-making of travellers regarding where they would like to travel. Alonso-Almeida and Ribeiro de Almeida [9] also analysed the influence of social media in travel decisions and found that social media were the most used and credible tool to choose destinations to visit.

In fact, pioneering research on this topic stressed that UGC does not provide the same destination images as those promoted by Destination Marketing Organizations (DMOs) [18]. In addition, these authors emphasized that these different images could be shared by the proliferation of new users' positive comments. Similarly, Stepchenkova and Zhan [25] also found differences among images of destinations projected by DMOs and images of users' perceptions of these destinations. Consequently, a new destination image could emerge on social media and change the regular tourist flow and visits. This new destination image could highlight new places or different aspects of traditional destinations, contributing to overcrowded places with large numbers of visitors, or putting previously unknown places in the spotlight.

For the aforementioned reasons, social media have acquired an active role in the construction of the image of a destination and the desire to visit it in the minds of tourists before they even arrive there. Social media are powerful tools that allow tourists to gain knowledge of the attributes of certain destinations [10]. Currently, they represent dynamic online travel information sources that can influence travel consumers [11] and, above all, the decision-making process [9,19]. Yoo and Gretzel [26] asserted that the shared information between travellers is the main source in information searching and decision-making, because of the experiential nature of tourism. Thus, previous research emphasized that social media opinions increase visits to certain destinations and places.

Therefore, the exhibition of certain destinations or places contributes to greater visibility and, consequently, it may create the desire to visit such places in potential tourists [5]. In addition, social media have a powerful ability to spread the so-called electronic word of mouth (EWoM) rapidly on a large scale [27] and exert substantial influence on attitudes, behaviours, and intentions [28]. Accordingly, positive comments on social media have an impact on visits to some destinations and places. Thus, social media have a "called effect" over certain destinations and places, contributing to overcrowding and overtourism.

## 2.2. Social Media Use in China

According to a Global Digital 2019 Report [29], the number of active social media users in January 2019 reached 3484 billion, with the number of active mobile social media users at approximately 2256 billion by the same time worldwide. Those figures mean a 45% and 42% of penetration of the

total population, respectively. Between 2018 and 2019, digital growth in internet users was 9.1%; in active social media users it was 9% and in mobile social media users, 10%. Thus, internet users are growing at a rate of more than one million new users each day.

These numbers of social network users worldwide far exceed the numbers estimated in 2017, [30]. In East Asia, internet penetration is 60% of the population, and 70% are social media users. According to a China Digital 2019 Report [31], China has a population of 1418 billion. The number of active social media users in China in January 2019 reached 802 million, with active mobile social media users at approximately 1007 million. Those figures suppose a 57% and 71% penetration of the total population, respectively. In addition, China is the second-largest country in absolute growth in internet users (6.7%), and the first in absolute increase in social media growth (10%) [29].

Chinese people spent an average of approximately 2 h of daily time using social media. Moreover, 99% of Chinese social media users have visited or used social media, and 85% participate frequently in social media [31].

Those data are consistent with [10]. These authors analysed reports released by the Chinese government and emphasized that more than 60% of Chinese share information and use social media to make travel decisions. Thus, most Chinese travellers could use social media to plan their vacations when they travel abroad because the level of confidence of the information posted on social media is very high. Zhang et al. [32] found that travellers who speak the Cantonese language like to consult the opinions shared by other travellers, and look for the best-rated trips that have a decisive influence on the purchase decision.

Therefore, Chinese tourists may choose to travel to places that are posted about extensively or highly valued on social media, thus contributing to overtourism.

### 2.3. Chinese Tourism Behaviour

The total of Chinese tourists worldwide in 2017 was more than 145 million, according to the World Tourism Organization [33], a share of 12% of the 1.230 million tourists in the world. China Outbound Tourism Research Institute [34] estimated that there were more than 160 million Chinese tourists in 2018.

The forecast is that there will be between 150 and 200 million Chinese tourists in 2020 [35]. China has been the world's largest tourist issuer since 2011. The balance is negative compared to the tourists received in China, which reached 25.9 million in 2015.

Regarding Chinese travel behaviour, according to COTRI [34], Chinese tourists are urban, slightly more men than women, upper middle class, travelling for tourism in more than 80% of cases, 60% aged between 25 and 44 years old, and mainly travelling through Asia (89% of cases in 2016). Those with the highest income profile travel to Europe, hence their enormous expense per person. Among this profile, millennials are introduced, with a change in the consumption profile, with lower incomes and more sensitivity to price.

A major recent study was performed with data from 2017 by the China International Travel Monitor and the Ipsos process, published by Hotels.com. With a base of 3000 surveys of travellers and 5800 partners, the study classified subjects into the following 5 types of Chinese tourists. Retailers: 25% of tourists; average age between 50 and 60 years; higher economic level and expenses; enjoy quiet activities, gastronomy and culture. Prudent connectors: 25% of tourists; 50 to 60 years old; travelling with family and looking for safe hotels and activities for the whole family; very organized and looking for diversity and quality of services. Seekers of Experiences: 17% of tourists; between 20 and 30 years old; looking for new, exclusive, modern, and elegant cultural experiences. Capricious: 12% of tourists; between 20 and 30 years old; they are usually new entrepreneurs; they have a high economic level; they like the best quality, such as 5-star hotels with all services; and they like adventure as well as new and exotic places. Adventurers: 21% of tourists; young millennials born in the 1990s; they love to discover new places, have a low budget, and search their networks for low-cost, bohemian and technology-oriented trips.

In Spain, the number of foreign tourists grew from 65 million in 2014 to 82 million in 2017, according to Ministry of Industry, Commerce and Tourism of Spain [35]. According to the World Tourism Organization (UNWTO) Annual Report [33], in 2016 Spain was the third-largest receiver of tourists in the world, after France with 84.5 million and the USA with 77.5 million. Spain rose to second place in the world rankings in 2017.

In 2016, 374,000 Chinese tourists travelled to Spain, and in 2017, 400,000 did so, according to National Statistics Institute (INE) [36], with 580,000 obtaining visas. Taking data from the China Tourism Spain Association (ATEC) (2018), in 2017 there were 718,000 Chinese tourists in Spain, a low share of 8% of Chinese tourists visiting Europe. Ministry of Industry, Commerce and Tourism of Spain [35] forecasted an increase from 374,000 in 2016 to 500,000 in 2020, and ATEC [37] forecasted more than 1 million. Although the main statistical sources do not coincide in the data, there is a general consensus that Spain is gaining a greater share of Chinese tourists from the other European countries.

France, with 3 million Chinese tourists, is the country with the most Chinese tourists in Europe, and Italy is the second with 1.7 million, according to Eurostat. Therefore, the number of Chinese tourists in Spain is very small and the potential is high, given the rate of change and the number of visits in social networks.

From January 2011 to 2017, the Baidu Search Indexes of Spain, Portugal, France, and Italy, which are four popular European tourist destinations, indicated that football matches had a significant impact on the search volume of countries in 2012 and 2016. During the European Cup held in 2014 and the Brazil World Cup held in 2014, the search volume regarding various countries increased significantly. It can be inferred that sports events have a strong appeal to the Chinese. In addition, terrorist attacks, natural disasters, and political events garner the attention of internet users. France and Italy occupy the top two positions in the overall rankings. Spain ranks third, and Portugal ranks fourth. For most of the four years that have been studied, the rankings of the four countries' search indexes have been relatively stable.

The market share of Chinese tourists in Spain certainly does not correspond to its global position because Spain is the second country in reception of tourists in the world, and the first country in terms of competitiveness of the tourism industry, according to the World Economic Forum in 2015. Adding to that the strong increase in the number of Chinese tourists in Europe, the potential is high.

### 3. Methods

#### 3.1. Overtourism in Barcelona: Contextual Analysis

##### 3.1.1. Overtourism and Initiatives of the Development of Chinese Tourism in Barcelona

Efforts to limit the massive growth of tourism, while at the same time developing policies to attract tourists, may seem contradictory. In Barcelona, as in other cities, the intention is to improve the quality of tourism in a sustainable quantity and quality, to deseasonalize the affluence of tourists and to increase the incomes and capillarity towards alternative tourism initiatives.

The characteristics of Chinese tourism are consistent with these objectives since Chinese travel calendars have different dates from those of European tourists, who have the greatest affluence. They also have different patterns of tourist consumption, concentrated in cultural and shopping tourism.

The origin of tourism development initiatives is the China Plan 2011–2020, of the Ministry of Industry and Tourism of Spain and the Chinese government. The main objective consists of attracting 1 million Chinese tourists to Spain. It is not an excessively ambitious plan because it represents a share of 0.6%. The results are shown in Table 1.

Catalonia is the first region of Spain in 2017 in reception of tourists, with 18.2 million, 6.1% of Spain's total, and a total consumption income of 3098 million euros. In 2017, China was the country with the highest growth in the number of tourists in Spain with 37%, and the second in increase in consumption incomes, with 18.1%. The evolution of spending was less than the increase in tourists, as shown in Figure 1.

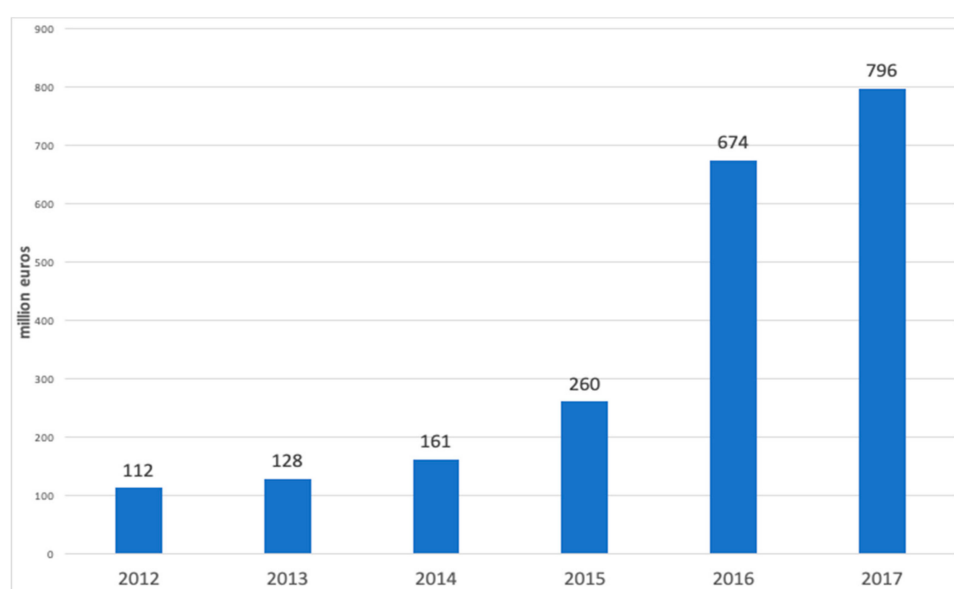


**Table 1.** Total of Chinese tourists who visited Spain, 2012–2017.

Year	Total of Tourists	Total Chinese Tourists	Market Share (%)
2012	57,464,496	187,000	0.3
2013	60,675,489	252,326	0.4
2014	64,995,275	287,844	0.4
2015	68,215,225	399,741	0.6
2016	75,563,198	374,755	0.5
2017	81,786,364	513,725	0.6

Source: [34,35].

From the China Plan, the policies of the Spanish government for the development of Chinese tourism are created by Turespaña, with a focus on increasing the frequency of flights and facilitating visas, as well as specific actions in China to improve the tourism brand of Spain and the representation in China by the Spanish Tourism Office in Beijing [38].



**Figure 1.** Source: Data from [35,36]. Expenditure of Chinese tourists in Spain in millions of euros. Own Elaboration.

Important in European policy is the success of the EU–China Tourism Year 2018 [38] initiative, agreed to in 2016 between China and the EU, Ministry of Tourism and Culture of China and European Travel Commission. European destinations have registered a year-on-year increase of 5.1% in Chinese tourist arrivals. Likewise, advance bookings of EU destinations in China increased between January and April 2019 by 16.9% compared to the same period of 2018, well above the 9.3% increase in Chinese bookings to destinations in China. ECTY received 200 Chinese tour operators on trans-European tours in 22 EU countries.

In Spain, there have been recent initiatives with a specific influence in Barcelona, including the 9th International Conference on Tourism and Hospitality Between China and Spain ICT 2019, the II Forum of Tourism of China FOTEC 2018, the permanent initiatives of the Spain China Tourism Association ATEC, the event at FITUR 2019: Chinese Tourism, and the initiatives of the ChineSpain company.

Specifically, in Barcelona, highlights include the Congress of the Mediterranean Seatrade Med cruise sector in 2017 and the Barcelona 2019 Summit: Quality Tourism vs. Massification, organized by The Shopping & Quality Tourism Institute, to attract quality travellers, with the aim of moving from 5 million to 7.5 million long-haul travellers, organized by companies and public administrations of the first level.

Finally, the most important international initiative is the New Silk Road Event 2013–2019, One Belt, One Road OBOR, Spain, which since April 2015 has been the 32nd Member State of the Silk Road Program of the World Tourism Organization (UNWTO), has the headquarters of the Maritime Silk Road in Valencia. The most important city in the Spanish initiative is Barcelona, and the Commission of the Silk Route in Spain is located in Tarrasa [39].

### 3.1.2. Overtourism in Barcelona: Situation

Barcelona is one of the most visited cities in the world, receiving double its population in tourists, and there, as in other European tourist destinations, the effects of overtourism have been felt [1].

In 2017, it was the 17th-most-visited city in the world, according to the Mastercard Index of Global Destination Cities 2018 [40]. Additionally, it is the 31st city according to Euromonitor International Top 100 City Destinations 2018, a report that presented evidence that the positive data on growth in Barcelona are overshadowed by overpopulation. Mass tourism is not synonymous with sustainable growth and positive effects for cities. The tourism industry and governments are increasingly aware that focusing on volume is not the right approach. However, many European cities try to avoid the overcrowding of tourists and seek tourism that adds value to the local economy. The perception of international tourism continues to reflect quality. INE [36] notes an improvement in the perception of international and Chinese tourists. International tourists assign Spain and Catalonia scores above 8.5 points in almost all variables.

There are similar data from the Barcelona tourism activity report [41], with perception ratings of international tourists and Chinese tourists above 8.5, also in a wide range of variables. The data on the character and kindness of the local people are significant, with a valuation of more than 8.5 of all countries and types of tourists, taking into account the effects of overtourism.

According to a report on Chinese tourism in Europe released by Ctrip [42], the largest travel agency in China, the Sagrada Familia is among the 10 most important attractions in Europe. Taking flamenco lessons and visiting the Sagrada Familia are the favourite activities of Chinese tourists in Spain, and Barcelona is among the 10 cities most visited by Chinese tourists in Europe.

However, the exhaustion of the population of Barcelona due to overcrowding by overtourism is shown in Figure 2. The opinion of 60% of the population is that the admissible limit has been reached in all the neighbourhoods of the city. However, 83% believe that tourism is still beneficial, that perception has dropped 10 points in 10 years. The majority do not want more tourists, especially in the most central areas, and they do not want more hotels.

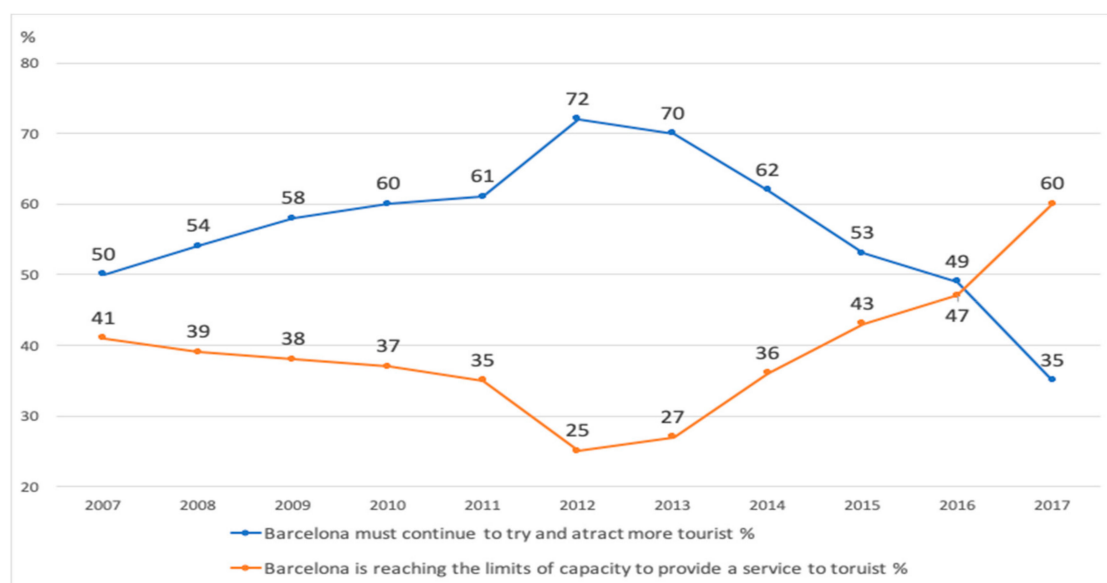
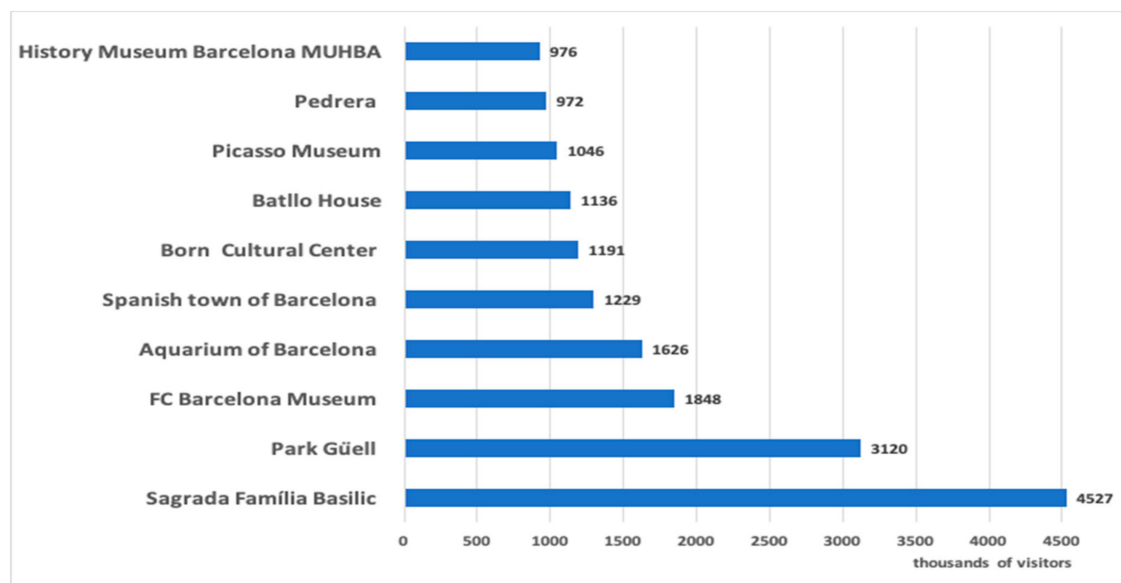


Figure 2. Source: Data from [41]. Barcelona Citizens' opinion about tourism size. Own Elaboration.

Regarding the overcrowding that has taken place in Barcelona, the 2006 base index of international tourists rose to 200% in 2017. A similar trend has been experienced in hotel stays and transport inflows. Barcelona has become more expensive as a tourist destination, in travel packages and in the average cost of accommodation. The number of tourists has reached 11.3 million in Barcelona and 8.9 million in the city, doubling the local population. The average hotel occupancy has risen to 80% and 70% tourist apartments, very significant values. The passenger movement of the Barcelona airport rose from 27 million to 47 million from 2005 to 2017, and trains from 2 to 4 million.

The main points of tourist massification are those of tourist interest, and the flow of visitors is presented in Figure 3. The top 10 destinations receive 18 million visits, with only La Sagrada Familia receiving more than 4.5 million. This all occurs in a less-extensive urban radius than in cities such as London or Paris.



**Figure 3.** Source: Data from [41]. 10 most visited tourist spots in Barcelona. Own Elaboration. Open access.

### 3.2. Research Methods and Data Collection

In this research, two methods of analysis are used to understand the role of user-generated content in overtourism. First, big-data and sentimental analysis are used to capture the sentiment of Chinese tourists towards Barcelona. Second, offers of tourist packages in China for people travelling to Spain are reviewed. Both analyses together will give a more complete picture of the contribution of social media to tourism in Barcelona and, consequently, to overtourism at this destination.

Below, big-data and sentimental analysis methods will be explained. Subsequently, an offer analysis will be deployed based on touristic tours offered in China.

#### 3.2.1. Sentimental Analysis

This research used user-generated content to explore the sentimental image of Chinese outbound tourists as destination evaluation. This approach can provide a new information source for examining the impacts of overtourism creation that previous studies have not offered. Particularly, online reviews on tourism websites written in Chinese, which are difficult to be explored by international researchers, include some of the most valuable information [32].

The first challenge is how to capture the sentiments of tourists from China found in the comments of the main places and tourist attractions, made online. Towards UGCs in Chinese, the contemporary content analysis tools are inapplicable because most of the lexicons are in English. Thus, it has been essential to build a lexicon and semantic rules, specialized in tourism, to capture the sentimental emotions in the Chinese language. This research drew upon use [43] that built up the lexical filters that



categorize the approaches about the sentiments involved in a phrase, taking into account the position of each word and the positive or negative emotion, according to the selected lexicon [10].

This research used a thesaurus built by the UNWTO with 8185 terms and 20 hierarchical semantic fields at a maximum of 5 levels to represent tourist activities in French, English, and Spanish, but, given that the Chinese language was not included, the authors translated a thesaurus into Chinese. This research used the tourism-specific lexicon in the HowNet dictionary. This dictionary contains 91,016 Chinese words [43]. In addition, this research adds new words that are either unusual expressions in daily life or nouns and verbs that are not considered to have sentimental inclination in the HowNet dictionary. This way of working with a native language is more trusted to identify sentiments than work with translated language.

Second, after defining lexicon-filtering rules, this research identified a set of semantic logics for measuring the level of emotion embedded in the UGC, in order to give a score of the positive or negative emotions contained in a sentence, assigned according to all the words and all the combinations of words. After this step, the scores are added up to discriminate its sentimental inclination. Then, the filtering processes starts using the program LIWC (Linguistic Inquiry and Word Count) in order to separate sets of words, and filtering the word with the tourism lexicon to calculate the emotional scores of the review. This research uses the same filtering rules of semantic logic as in Liu et al. [43].

Finally, the use of the Gephi program offers more advanced results, applying network analysis of tourists' preferences, obtaining frequency words and the co-occurrence strengths of interconnected objects in different circumstances [44]. This technique has been used in content analysis effectively [44,45]. Gephi has been applied in two steps [43]: (1) collecting the most frequently mentioned words in review and (2) running a co-occurrence analysis in the most frequently mentioned words and building a cluster network.

Based on the above rules, 11,655 tour reviews of Barcelona city posted on Chinese major Online Travel Agencies websites by using web crawler tools are collected (Table 2). These websites include four major Chinese OTA website (Baidu Travel, Qunar, Mafengwo, and Ctrip). Relevant words are captured through the filtering system and valued according to the sentimental rules. Based on the value, the review sentences are separated into 3 categories—positive, neutral, and negative. By means of Gephi, the sentimental inclination of the tourism reviews can be visualized.

**Table 2.** Profile of the collected UGCs.

Comments	Sum of Positive Comments	Sum of Neutral Comments	Sum of Negative Comments	Proportion of Positive Comments	Proportion of Neutral Comments	Proportion of Negative Comments
11,655	9760	331	1564	0.8374088	0.0283998	0.1341913

### 3.2.2. Trip Packages Offered with Spain as a Destination in China

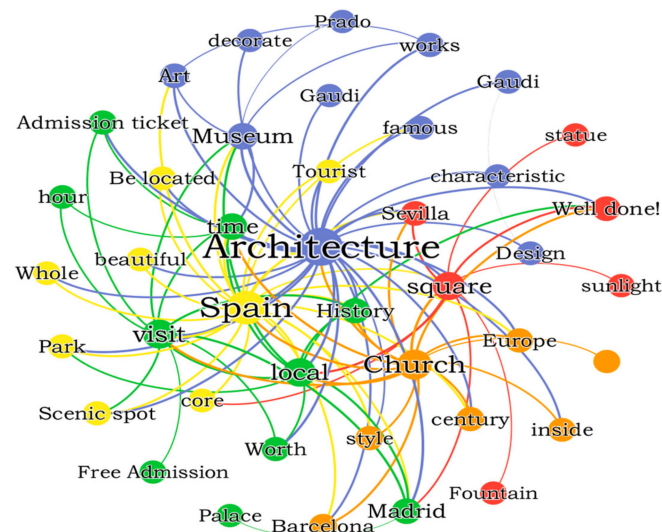
Regarding trip packages offered in China, information is gathered from the most important tour operators that included Spain, resulting in 321 tour packages from 3 OTAs: Ctrip, Qunar, and Mafengwo. Product portfolios with Spain as the sole destination account for 24.9%, while others are all mixed-destination products, with Spain combined with another country or multiple countries, such as Portugal, France, Morocco, and Greece. Below, results will be presented on both the sentimental and offer analyses.

## 4. Results

### 4.1. Sentimental Analysis Results

According to the tourism reviews of Spain's Barcelona, the semantic network is constructed to analyse the perceptions of visitors. As shown in Figure 4, the comment network on Barcelona contains 41 nodes and 100 edges, forming 5 clusters. Clusters represent the vision of the Chinese tourists of the destination,

in this case Barcelona. The nodes show the most frequent elements, and the node diameter shows the relevance inside each cluster. The lines that connect the cluster and the nodes are the associations among the elements. Finally, the measure of internode separation shows the degree of proximity [43].



**Figure 4.** Semantic network of Barcelona tourist comments.

According to key nodes of clustering subgroups, the interpretation is as follows. First, the core semantic clustering subgroup—Architecture—highlights Barcelona’s unique historical culture and diverse architectural styles. The second cluster—Spain—emphasizes the location of Barcelona and its relation to the most representative places in Spain (e.g., Madrid) and the vision of the entirety of Spain as a “beautiful,” “well located,” “tourist,” “scenic spot” and “core” destination that merits a visit. The third cluster—Church—stresses the number, antiquity and different styles of the churches in Barcelona linked with their European location and history. The other semantic clustering subgroups emphasize the artistic atmosphere in Barcelona’s urban areas, where fountains and statues are viewed as major tourist attractions.

As one can see, UGC emphasizes the architecture in Barcelona, with Gaudi the main exponent of architecture in Barcelona. Gaudi is the architect of some of the most visited places in Barcelona, such as the Sacred Family, Guell Park, Pedrera House, and Batlo House. For that reason, Gaudy appears two times, associated with different types of architecture. Thus, the large number of positive comments related to Gaudi architecture gives high visibility to a number of places in Barcelona and could convert this destination to one of people's favourite cities to visit in Spain. In the same sense, Chinese tourists discussing museums in Barcelona stressed their variety. This finding is also consistent with the most-visited places in Barcelona (Figure 4). Thus, Chinese travellers will increase their visits to those places when travelling to Barcelona.

The node clustering subgroup Spain in Figure 5 shows that Chinese tourists relate Barcelona and Madrid inside Spain and with a number of relevant characteristics for Chinese travellers. These e-WoM give Barcelona the focus as a prioritized place to visit, as well as Madrid. Thus, Chinese travellers who speak positively of Barcelona also perceived Madrid as a place to visit.

Nevertheless, other places emerge from Chinese UGC in Barcelona, such as squares, fountains and natural spaces with marvelous sunlight. These places are not the traditional touristic places, but they represent places worthy of discovery. Thus, the positive emotions communicated on social media could influence travel behaviour for subsequent travellers, increasing the number of tourists visiting these places.

In addition, locals, cultural life, and arts are other factors of Barcelona experienced by travellers and highly valued. Today, travellers seek live experiences with locals and to experience the real local life. Thus, Barcelona is considered a good destination to have authentic local experiences.

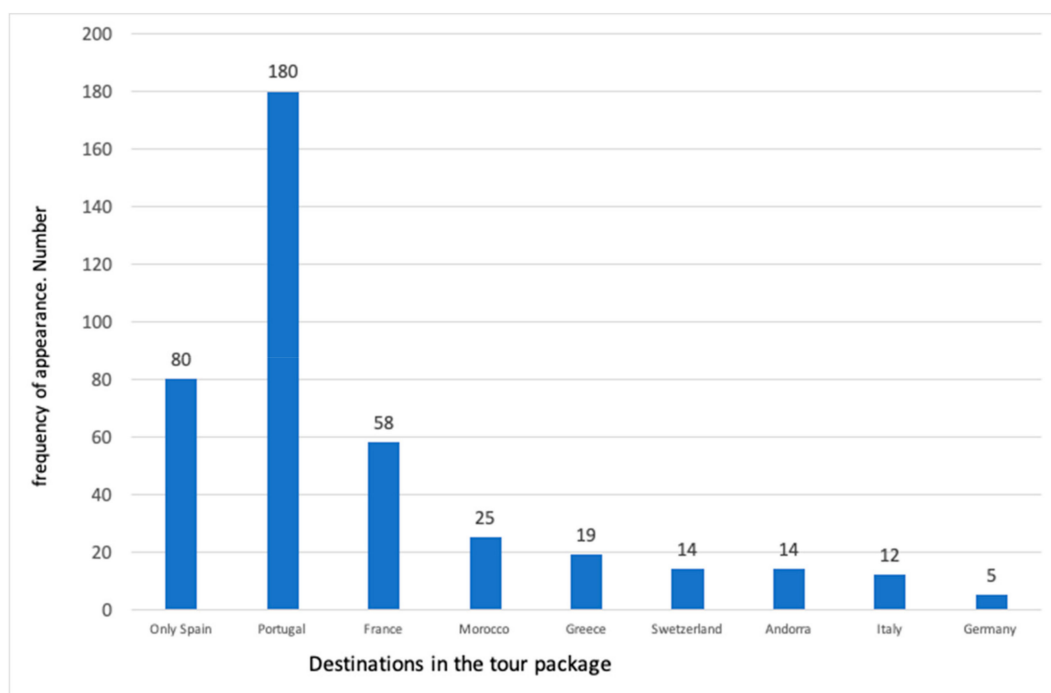
The negative comments on Barcelona represent a proportion of 13.41% of the total comments. It can be found from the comments that tourists' complaints about Barcelona are focused on certain aspects; municipal sanitation, for example, is often criticized by Chinese tourists. Other negative comments regard the city's appearance. Many historical sites are "desolate" and "boring" to Chinese tourists. Nevertheless, the worst comments are related to crowded scenic spots, long queuing times, and thievery.

The overall findings are definitely consistent with [10]. These authors evaluated opinions of Chinese tourists about Spain and found a positive evaluation of Barcelona regarding architecture, monuments, and cultural life. Nevertheless, they note that the high frequency of theft was negatively evaluated by travellers. However, positive comments exceeded the negative ones, and emotions involved could be powerful in encouraging visits to Barcelona.

In fact, Liu et al. [43] found that Chinese tourists are more interested in the most common places and attractions, to take pictures and be shown on social media than on the elements of basic tourism offers. Therefore, the strength of positive comments about Barcelona on social media is an incentive to seek the opportunity to travel to this destination for Chinese tourists but can also contribute to overtourism.

#### 4.2. Trip Packages Offered with Spain as a Destination in China Results

Regarding trip packages, as explained above, 321 tour packages are collected, including Spain from 3 OTAs: Ctrip, Qunar and Mafengwo. Product portfolios with Spain as the sole destination account for 24.9%, while others are all mixed-destination products with Spain combined with another country or multiple countries, such as Portugal, France, Morocco, or Greece (Figure 5). Those products can be divided into 4 types: private package tours, semi-free tours, self-guided tours and package tours based on the form of tour. According to the tour mode, these products can also be divided into 6 types: tour groups formed at the place of departure, tour groups formed at the destination, self-guided tours, cruise tours, customized tours, and day tours.



**Figure 5.** Frequency of appearance of each country in tour packages offered by Online Travel Agencies. Explanation of tour packages. Own Elaboration.

Spain enjoys a warm climate similar to the other Mediterranean countries, with dry summers and winters of moderate temperature. It is one of the hottest areas in Europe, and its hot seasons occupy July to September every year, when a large number of tourists visit the country. Because the period overlaps with the summer holiday in China, in this period there are special promotions, and flight ticket prices will also decrease to some extent. Customized tours are the most expensive, followed by package tours and then semi-free tours. Significantly, most of the Spain tour packages for Chinese tourists include multiple countries for the purpose of price advantages and broader markets.

In terms of product acquisition channels, there are basically three ways to book Spanish hotels: agents, OTAs, and travel agencies. This study selects Ctrip, Qunar, and Mafengwo as the representatives of OTAs in China, comparing the tourist routes of Spain, France, and Portugal to investigate the promotion of products. Free tour products released online include 3 types—"free tours," "semi-free tours," and "customized tours"—and group tour products include 2 categories—"package groups" and "private groups" (see Table 3). Free tours suppose that no tours are included in the package. In other words, this type of product is a basic touristic one, with only trip and accommodation included. Semi-free tours have some visits that are included and others that are optional. Customized tours are tailored tours in which customers select what they want to visit.

**Table 3.** Number of Similar tourist products.

Routes	Spain			
	Free Tour	%	Package Tour	%
Ctrip	37	15%	209	85%
Qunar	305	91%	31	9%
Mafengwo	5	17%	24	83%

France has the maximum tourist products, followed by Spain, and Portugal has the minimum tourist products in China. Judging from the total amount of tourism products, Spain has made great efforts in promotion, but there is still a gap with France. The differences in platforms have led to a large difference in the proportions of free tours and group tours.

For the number of tourism products, France has the maximum tourism products, followed by Spain, and Portugal has the minimum travel products in China. Differences exist in the types of routes provided by major OTA websites in China. Ctrip and Mafengwo are similar in the proportions of package tours and free travel, and the proportion of package tours is significantly higher than that of free travel, while on Qunar, the proportion of free travel is much higher than that of the tour groups. The data explain the differences among OTA websites in marketing model and target groups.

There are also some differences between the current popular routes on OTA websites. Tourist routes posted on Ctrip are relatively simple, usually starting from Seville in the south, heading north to Madrid and back from Barcelona in the northeast. Routes are relatively shorter on Qunar, covering fewer cities. The routes are usually arranged in "Madrid + Barcelona + 1–7 other cities" mode. The route arrangements of the hornet's nest are similar to Ctrip, which basically follows the travel pattern from south to north. It can be concluded that there are differences in OTA's route arrangement between free tours and package tours (Table 4).

These results show that Barcelona is included in all trip packages in OTA in China. Therefore, the results indicate that Spain is an increasingly desired destination (Table 1) and that Barcelona is a central point on all tourist routes in Spain from China.

**Table 4.** Hot Tourist Routes in Spain on OT Websites.

OTA	Hot Tourist Routs (Spain)
Ctrip	Sevilla–Ronda–Granada–Toledo–Segovia–Madrid–Zaragoza–Barcelona
	Sevilla–Ronda–Granada–Cordoba–Madrid–Toledo–Cuenca–Valencia–Barcelona
	Barcelona–Valencia–Granada–Ronda–Sevilla–Cordoba–Consuegra–Toledo–Madrid–Zaragoza–Barcelona
Qunar	Barcelona–Valencia–Granada–Sevilla
	Barcelona–Ronda–Cordoba–Toledo–Madrid–Salamanca
	Madrid–Valencia–Barcelona
	Madrid–Sevilla–Barcelona
	Madrid–Lisbon (Portugal)–Sevilla–Cordoba–Barcelona
Mafengwo	Sevilla–Ronda–Mijas–Granada–Madrid–Zaragoza–Barcelona
	Madrid–Zaragoza–Barcelona–Valencia–Madrid
	Sevilla–Ronda–Cordoba–Madrid–Barcelona
	Sevilla–Ronda–Granada–Valencia–Barcelona–Zaragoza–Madrid

## 5. Discussion

As previous research in the Chinese context has stressed, social media data have a very strong influence on decisions made over visiting certain destinations. Thus, WeareSocial Digital China [31] found that Chinese people like to consult online peer reviews regarding their preferred destinations, touristic or leisure activities before travelling and that these opinions have a strong influence on the decisions taken. [45] reported similar findings. Those authors explained that online reviews do not consist just of assigning a numeric rating to a touristic service or destination. This user-generated content is posted like a part of a “social discourse” in which users describe their personal experiences, social stances, and psychological emotions. Therefore, they are actors, not passive agents producing their own experience [46] (p. 484).

Thus, findings derived from sentimental analysis and offer analysis stressed the importance of Barcelona as a destination for Chinese tourism. These findings also foresee the rise of arrivals of Chinese tourists to Barcelona, not only to traditional places but also to less-popular routes and places. These findings reveal that Chinese tourists are moving out of the tour routes, discovering new places and making them visible in social media. This idea has been added to results. Therefore, a strategic effective plan to manage touristic flows and provide flexible solutions will help face overtourism. Nevertheless, until now Barcelona has failed in managing this issue. Barcelona developed a strategy tourism plan in the period 2010–2015 in order to back away from the incipient tourismphobia based on measures such as territorial deconcentration, governance of tourism, generation of complicities with citizens, and competitive improvements in the city [47]. However, the analysis done by Martins [47] showed that this plan failed due to the lack of real implementation. It was implemented less than 50% of measures.

Barcelona elaborated a new strategic plan for the period 2016 to 2020. This new plan pursues rationalization of resources and degrowth of tourism activity [48]. At sight of figures, it is possible to conclude that this plan is also falling. More and more tourists are arriving in Barcelona driven by its popularity as a destination for the top-flight tour operators and its image on social media. Therefore, it is possible to conclude that social media could increase the demand to visit Barcelona, and this demand could push travel packages and independent trips to Barcelona. As a result, this increase of Chinese tourists will contribute to overtourism.

From the offer’s viewpoint, Barcelona is a well-valued destination and a “must” in any tour package. Although, tourist activity has been concentrated in the city center and in the most famous Gaudi architecture points [49], this situation seems to have changed in two directions contributing to overtourism in the case of Chinese tourism. First, Barcelona will increase its presence in tour operators’ products in China, in Spain—only visits or in combination with other countries in Europe or in Northern Africa. Second, Chinese tourists post their touristic experiences in Chinese social media, contributing to reinforce the wish to travel to the most popular places and overcrowding these. Therefore, online users can rapidly become travel opinion leaders, and such opinions can influence attitudes towards

a certain destination, contributing to increase the touristic flow and, consequently, to perceptions of overtourism [50]. Some example are the cases of Macau, Hong Kong or Taiwan, where multiple protests have occurred when Chinese tourists have had easy access to these destinations [48,51]. Thus, adopting a thoughtful long-term planning strategy with a multi-action and multi-stakeholder approach to address overtourism seems the right way to address this issue [52].

## 6. Conclusions

Overtourism is a complex and multidimensional phenomenon where no one set of measures will address it. Social media will continue showing users' preferred places and travel experiences, contributing to congestion of certain destinations. Some of the measures taken by policy makers on destinations are related to dispersing travellers within the city and beyond [2]. However, this type of solution may only be temporary. In other words, bread now and hunger for tomorrow because dispersed travellers may discover new places not yet popular and transform them into fashionable places through social media networks.

The same situation could happen with other measures because no information has over the impact of measures taken to control the touristic flows in overcrowding places. Moreover, in recent years, tourism has changed their traditional way to travel and plan trips and China is not free of this trend. Internet and social media provide new horizons regarding where to travel, what to visit, or how to live certain experiences with food, locals, culture, or music, among others. It is a little dangerous because some persons in social media could promote some tourist experiences in places without any control, limited access or risky.

In addition, Chinese OTA websites emphasize the unique tourism resources of Spain, and add many travel guides and other tourists' long comments to the marketing information. Human tourism resources such as bullfighting, cultural heritage, architecture, church, and soccer are essential elements in the marketing documents, and the enthusiastic, bold, and unrestrained characteristics of the Spanish are also mentioned. Moreover, natural tourism resources, such as the Pyrenees Mountains, unique climatic conditions and ski tourism products, become the focus of marketing efforts. The introduction of tourism resources is often supplemented by corresponding tourism guides, giving information about the best travel times, clothing tips, daily expressions, and local customs. Those guides give potential tourists an intuitive tourist destination image, which enhances Chinese understanding of all aspects of Spain. Visitors' long comments can serve as a tourist guide and provide more important information. Beautiful words and pictures are more likely to bring visual shocks, and text about travel costs also attracts people's attention. Thus, Chinese OTAs are trying to increase the number of Chinese tourists travelling to Spain.

Finally, Spain's national tourism administration has opened an account on both "WeChat" and "Weibo," the most popular Chinese social media, focusing on promoting attractions such as local Spanish art, sports, food, architecture, festivals, shopping, beaches, world heritage cities, and family-oriented tours. "WeChat" and "Weibo" are platforms mainly targeting Chinese youth that are close to their daily lives and good at utilizing Chinese celebrities and heated IPs. For example, the Spain Tourism Bureau has invited Peng Yuyan, a famous Chinese actor, to promote Spain, and on Weibo, the memorial activities for the Chinese female writer Sanmao have aroused netizens' sympathy. This type of promotion using social media can capture additional market segments and increase the number of tourists travelling to Spain.

In summary, social media may be contributing to overtourism in Barcelona in the case of Chinese tourism, but obviously this situation may be extrapolated to other tourist destinations such as Europe or North America. Given the exploratory nature of this study, more research is needed to better understand the phenomenon of overtourism and its causes and impacts due to UGC diffusion on social media. Future research will address a confirmatory analysis in order to try to confirm empirically those results.



Finally, this paper has some limitations. Mainly, data have been collected for three main OTAs, but they do not cover all Chinese media data. In the near future, UGC of the other Chinese social media networks should be analysed and compared. Additionally, socio-demographic data and details of tourism product information could help develop a better understanding of the influence of social media on travel behaviour and try to ameliorate difficult situations such as overtourism.

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