

COVID-19 and tourist mobility at destinations: a literature review and emerging research agenda

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Abstract

Purpose – This paper aims to review conceptual and empirical studies that analyse the impact of the pandemic on mobility and tourism behaviour at destinations in order to identify proposals, forecasts and recommendations to guide the future research agenda on the subject.

Design/methodology/approach – This study used a systematic literature review to synthesise information from scientific articles published in journals indexed in the Web of Science database related to tourism mobility at destinations during the COVID-19 pandemic.

Findings – This article found that, according to the existing literature, the COVID-19 pandemic is acting as a catalyst for the sustainable transition of tourism. Although the findings reveal a lack of empirical research on the impact of the pandemic on tourism mobility at destinations, the article synthesizes the short- and long-term impacts of the pandemic and sets out the future research agenda on tourist mobility at destinations.

Originality/value – To the best of the authors' knowledge, this is the first systematic review of the impact of the pandemic on mobility and tourism behaviour at destinations that attempts to describe the emerging challenges and the agenda for future research.

Keywords COVID-19, Pandemic, Tourism, Mobility, Sustainable transition

Paper type Research paper

(Information about the authors can be found at the end of this article.)

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1. Introduction

The emergence of the COVID-19 pandemic brought both international and national mobilities to the ground level, with a prominent impact on the travel and tourism sectors caused by mobility restrictions. The increase in literature related to the impact of the pandemic on mobility and tourism has been noticeable in recent months. However, much of these studies focus on the role of tourism as a key factor in the spread of the virus in the early stages of the pandemic, or the repercussions of the global shutdown in the economy, rather than the impacts at the local level in terms of changes in tourist behaviour, travel patterns and mobility within destinations. The pandemic has come in a context where there is some consensus on the need to reformulate tourism towards a more socially and environmentally sustainable model (Ioannides and Gyimóthy, 2020). It is, therefore, a moment of opportunity to reduce the ecological footprint of global hypermobility.

The strategies and policies implemented in different countries to mitigate the impact of the pandemic, along with the perceived risk of contagion among the population, have put in motion a set of more environmentally friendly tourism practices that reconfigure mobilities at destinations (Mackenzie and Goodnow, 2020). At the time of writing this article, the pandemic is still on the rise, so it is necessary to review the existing literature on COVID-19 and tourist mobility at destinations to debate a subject that is highly marked by uncertainty.

Taking into account this context, the aims of this article are therefore to: (1) review studies, both conceptual and empirical, that analyse the impact of the pandemic on tourist mobility and behaviour at destinations and (2) identify proposals, forecasts and recommendations that will serve to guide future debate and research agendas on the subject. Tourism-related mobilities is a broad field and could be studied from different perspectives and territorial scales (Hannam *et al.*, 2013; Hall, 2015). In this article, we focus on the studies on the effects of the pandemic in the mobility patterns of visitors during their stay in a tourist destination. This means that, for instance, we will not analyse the studies on global change of mobility flows of visitors from their origins (home region) to their diverse destinations. Understanding tourists' mobility during their stay is crucial for destinations. First, it allows for identifying mechanisms to reinforce internal accessibility and improve tourist experience and satisfaction. Second, this information helps introduce informed policies to mitigate the potential negative social and environmental externalities of tourists' flows in destinations.

The article aims to provide knowledge for researchers and practitioners regarding the state of the art for tourism mobilities at destinations during the pandemic, not only getting information about measures, policies and strategies that seek to mitigate the impact of the pandemic but also about research gaps that have to feed the forthcoming research agenda. To this end, a systematic literature review is implemented to detect the main streams of research within the field of tourism mobility at destinations under the effects of COVID-19. Our literature review aims to answer the following research questions:

1. What are the topics analysed by studies on the effects of COVID-19 pandemic mobilities in tourist destinations?
2. What are the findings obtained by these studies?
3. What are the main lessons underlined for short-term adaptation to the new context for tourism during the pandemic?
4. What are the main implications highlighted for emerging long-term challenges?

The article is structured in four sections. After this introduction, in [Section 2](#), we explain the method implemented to do the literature review. Concretely, the inclusion and exclusion criteria and the selection and extraction of the research articles to be analysed are revealed. Then, in [Section 3](#), we present the findings of the review. Finally, in [Section 4](#), we conclude with a discussion and conclusions, in which recommendations, limitations and future lines of research are highlighted.

2. Method

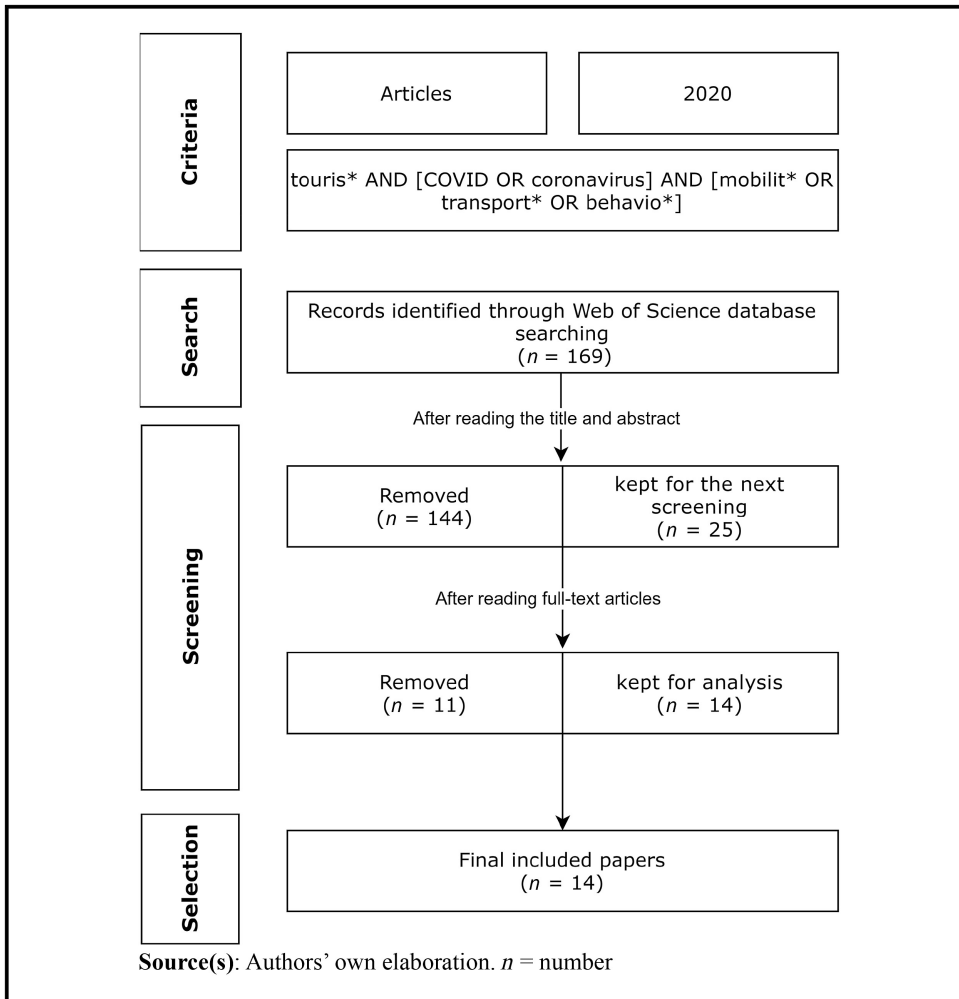
This study used a systematic review of the literature to synthesise the information of scientific articles dealing with tourist mobilities at destinations during the COVID-19 pandemic. The search was performed by mid-January of 2021 on the Web of Science (WoS), a database that allows access to journal articles, books and other printed material covering all fields of academic knowledge. WoS brings together information from seven different databases and allows the application of multiple search filters such as filters by year, research domains, document types, language or authors.

[Figure 1](#) presents the stages of implementation carried out in the systematic literature review. Firstly, the inclusion criteria established in the information search process were scientific publications from the year 2020 that included the following words:

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touris* AND [COVID OR coronavirus] AND [mobilit* OR transport* OR behavio*]
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The search resulted in a total of 169 articles that met the established criteria, with the inclusion of these words either in the title, abstract or keywords. The database was exported to a comma-delimited file to proceed with further analysis (available upon request).

Figure 1 Execution stages of the systematic literature review



Then the database was filtered after a first screening process carried out by the three authors. Concretely, we examined the title and abstract of each publication and excluded those that did not specifically address issues related to tourist mobility in times of COVID-19. This process left us with a total of 25 articles that met the inclusion criteria.

Subsequently, we moved on to the second screening process, which consisted of a full-text analysis of the remaining articles. To be precise, we looked for those articles dealing fully or partially with issues related to tourist mobility within destinations in the current pandemic context. As a result of this in-depth analysis, the authors reached a consensus to keep a total of 14 articles that were used to implement the literature review and reach the objective and research questions of the present study.

The literature review consisted of conducting a thematic analysis of the selected articles to extract the results presented in the following section. As shown in [Table 1](#), this analysis made it possible to identify five general themes of interest. Each theme is associated with the different research questions and objectives of the present study.

3. Findings

[Table 2](#) presents the publications selected for analysis. It indicates the type of articles according to the conceptual or empirical nature of the study. Moreover, it identifies the contribution of each

Table 1 Association between the literature review goals, the research questions and the thematic analysis of the selected articles

<i>Objective</i>	<i>Questions</i>	<i>Thematic analysis</i>
1) To review studies, both conceptual and empirical, that analyse the impact of the pandemic on tourist mobility and behaviour at destinations	1) What are the topics analysed by studies on the effects of COVID-19 pandemic mobilities in tourist destinations? 2) What are the findings obtained by these studies?	a) Is the study empirical or conceptual? b) The pandemic as a catalyst for a sustainable transition in tourism c) Diagnosis of the impact of COVID-19 on tourism mobility at destinations
2) To identify proposals, forecasts and recommendations that will guide future debate and research agendas on the subject	3) What are the main lessons underlined for short-term adaptation to the new context for tourism during the pandemic? 4) What are the main implications highlighted for emerging long-term challenges?	d) Analysis or review of responses or adaptation measures of different territorial contexts to the emerging challenges for tourism and mobility derived from COVID-19 e) Proposals, recommendations or orientations for tourism and mobility management at destinations in times of pandemic f) Visions, perspectives or forecasts for the future (long-term or post-pandemic scenarios)

Source(s): Authors' own elaboration

article in the five key topics presented in the methods section. Accordingly, this section is organised following these categories.

3.1 COVID-19, a catalyst for a more sustainable tourism model

Ten of the articles studied suggest that COVID-19 is an opportunity to change the current tourism model towards a more sustainable and environmentally friendly model. The arrival of the new coronavirus (SARS-CoV-2) has meant the collapse of tourism-based economies around the world due to the global mobility and travel restrictions imposed to avoid the spread of the virus. The tourism hiatus has led to a reduction in pollution (Ioannides and Gyimóthy, 2020), which invites reflection on the sustainability and resilience of the pre-existing socio-economic structure (Renaud, 2020) and the environmental impacts caused by tourism, such as carbon footprint or climate change (laquinto, 2020). Furthermore, in a pandemic context with such a high risk of contagion, the sanitary measures of physical distancing, use of masks and hygiene implemented worldwide raise other issues such as the feasibility of mass tourism, with, for example, cruise tourism (Renaud, 2020) or urban tourism (Montanari, 2020) being two of the most recognised examples.

The pandemic could bring about a lasting transformation in global travel patterns (Ioannides and Gyimóthy, 2020). As a consequence, it is argued that COVID-19 could be the catalyst for a fairer and more sustainable tourism (Renaud, 2020; Sheller, 2020; Ioannides and Gyimóthy, 2020; Gössling *et al.*, 2020; Mackenzie and Goodnow, 2020; Zielinski and Botero, 2020; Wen *et al.*, 2020) that addresses the environmental and destination management challenges and threats posed by the existing tourism model, whilst promoting new and more sustainable ways of managing protected landscapes (McGinlay *et al.*, 2020). However, the need for short-term economic recovery could dissolve this effect. The fact that tourism is an essential activity for the maintenance of the economy of many countries (laquinto, 2020) could jeopardise this transformation process. Indeed, precedents suggest that tourism tends to recover quickly in the face of adversity, as in the case of the 2004 Indian Ocean tsunamis, the eruption of volcanoes, terrorist attacks, other health crises such as SARS-1 in China (Ioannides and Gyimóthy, 2020) or the 2008 economic crisis. These events were not sufficient reasons for the decline of global tourism development (Gössling *et al.*, 2020).

Table 2 Articles analysed in this study dealing with tourism mobility at destinations and COVID-19 pandemic

Author, Year	Objective	a	b	c	d	e	f
McGinlay <i>et al.</i> (2020)	To examine the challenges that emerged due to COVID-19 for nature protected areas and their deeper causes	E	✓	✓	✓	✓	
Ioannides and Gyimóthy (2020)	To discuss the implication of the COVID-19 crisis, its effects on tourism and (global) mobility and the change of model	C	✓			✓	
Renaud (2020)	To question, based on the COVID-19 crisis, the model of mass cruise tourism and its negative effects on destinations	C	✓	✓	✓	✓	✓
Iaquinto (2020)	To comment on the role of tourists and their mobility in the spread of the virus and the need to move towards models of mobility with less environmental impact	C	✓	✓		✓	
Mackenzie and Goodnow (2020)	To discuss the increase in short-haul adventure travel as a result of the mobility restrictions caused by the pandemic	C	✓	✓	✓		✓
Zielinski and Botero (2020) Zielinski and Botero, 2020	To review the literature in the fields of health, psychology and environmental sciences and the evidence affecting beach tourism in times of pandemic	C	✓	✓	✓	✓	✓
Li <i>et al.</i> (2020)	To analyse China's population mobility plans in the pandemic period and their forecast for the post-pandemic period applying the theory of planned behaviour	E		✓			✓
Sheller (2020)	To identify other ways in which Caribbean small island states and non-independent territories could rebuild more sustainable ecologies and economies as they emerge from the pandemic within the current climate crisis	C	✓	✓		✓	✓
Capolongo <i>et al.</i> (2020)	To integrate the strategic objectives of urban health, focusing on possible responses, both immediate and medium to long term, to the current environmental, social and economic aspects of the period of physical disengagement	C				✓	
Wen <i>et al.</i> (2020)	To reflect on the potential impact of the pandemic on the daily life and travel patterns of the Chinese population	C	✓	✓	✓	✓	✓
Chhabra <i>et al.</i> (2020)	To suggest an ASI (Avoid-Shift-Improve) model that will help autorickshaws become a safer and more sustainable mode of transport after COVID-19	E				✓	✓
Gössling <i>et al.</i> (2020)	To compare the impacts of COVID-19 with previous epidemics; explore how it can change society, the economy and tourism and analyse why COVID-19 is analogous to the current climate crisis and why the current model of tourism growth needs to be questioned	C	✓	✓			✓
Ivanova <i>et al.</i> (2020)	To analyse the travel intentions of tourists in the post-pandemic world	E					✓
Montanari (2020)	To examine whether to return to overtourism after COVID-19 or whether the effects of the pandemic should be used as an opportunity to modify, partially or totally, the economic and social conditions that led to overtourism	C	✓			✓	

Note(s): a: C = Conceptual, E = Empirical; b: COVID-19 as an opportunity to change/adapt the tourism model; c: Diagnosis/analysis of the impact of COVID-19 on tourism mobility in destinations; d: Analysis/review of responses or adaptation of different contexts to the new emerging challenges; e: Proposals/recommendations/orientations for tourism and mobility management; f: Visions/perspectives/forecasts for the future

Source(s): Authors' own elaboration

The main difference with respect to other crises is that the effects of climate change are increasingly apparent (and global) and, although not as immediate as those of the COVID-19 pandemic, they could become more devastating (Gössling *et al.*, 2020). Therefore, there is a global consensus on the need to move towards a model of tourism that is fairer and more sustainable for the environment in general and tourist destinations and their population in particular (Sheller, 2020). This transformation process is even more necessary in tropical countries and small island developing states (SIDS) that are not only highly dependent on tourism, but are also highly vulnerable to the adverse effects of climate change (Gössling *et al.*, 2020; Sheller, 2020). Moreover, there is a sharp dichotomy between privileges and differential mobility regimes between travellers and residents in those territories, often theorised as an extension of colonialism (Sheller, 2020).

3.2 Impact of COVID-19 on tourist mobility at destinations

Tourism has initially been seen as a transmission vector for COVID-19 (laquinto, 2020), but this pandemic, in turn, has had a brutal impact on tourism. Nine of the articles delve into analysing the impact of COVID-19 on tourist mobility at destinations. This impact has been inevitable because COVID-19 has been coupled with mobility restrictions that have led to major changes in the global tourism system (Ioannides and Gyimóthy, 2020). The articles reviewed in this study suggest that this impact has led to an increase in visits to parks, forests and green spaces, with a possible fear of travelling away and an interest in visiting local, regional or national destinations (Ioannides and Gyimóthy, 2020; Mackenzie and Goodnow, 2020). In this sense, this has caused an important decrease in the arrival of international visitors (Gössling *et al.*, 2020), paralysing tourism in highly dependent destinations such as the Caribbean countries (Sheller, 2020), but also a change of patterns and preferences (Li *et al.*, 2020). For example, remote destinations characterised by the arrival of tourists seeking adventure in nature have also seen a significant decrease in the volume of travellers (Mackenzie and Goodnow, 2020). The “micro-adventure” movement, which emerged in the United States and Europe in 2016 (Mackenzie and Goodnow, 2020) and calls for the need to develop low-carbon, proximity-based adventure tourism that retains economic resources and social capital in the territory, has been reinforced due to the pandemic. The sanitary crisis and its associated mobility restrictions have contributed to the valorisation and enhancement of this type of activity, inducing an unprecedented increase in short-radius mobility to natural parks and wilderness areas (Mackenzie and Goodnow, 2020; Wen *et al.*, 2020). These dynamics could provide an opportunity for rural and hitherto less-developed tourism regions (Ioannides and Gyimóthy, 2020). However, it may also lead to overcrowding of protected areas that need to be regulated (McGinlay *et al.*, 2020). Mass tourism has also suffered most notably from the impact of COVID-19, with the cruise industry coming to a complete halt (Renaud, 2020), beaches having to cope with the need to avoid crowds (Zielinski and Botero, 2020) and historic centres being deserted during the first months of the pandemic (Montanari, 2020).

3.3 Adaptation strategies to emerging challenges for tourist mobility at destinations due to COVID-19

Five articles included in this literature review analyse, explain or suggest adaptation strategies for the emerging challenges COVID-19 has brought to tourist mobility at destinations. However, according to the nature of the destination, the type of measures implemented varied significantly. During the persistence of the pandemic, public authorities will have to be attentive to adapt to changing times, and most probably, innovative and adaptive capacities will be required (Ioannides and Gyimóthy, 2020).

Mass tourism destinations have traditionally struggled to manage tourism whilst avoiding overtourism with all the side effects the latter creates, both for the quality of life of residents and the quality of the tourist experience. Despite an increase in domestic tourism and an increased interest in visiting natural areas, some mass tourism destinations, such as coastal areas, have received an important volume of tourists (Zielinski and Botero, 2020). Therefore, the management of tourist

mobility flows in and along the beaches has represented a major challenge for public authorities. Thus, the strategies implemented have been particularly linked to smart tourism measures in order to guarantee proper monitoring and control of mobility flows of beachgoers. In this regard, several beach destinations have controlled the number of beachgoers through online booking applications, separating entrances and exits on beaches, implementing grid systems to manage the distance between groups or providing information on COVID-19 risk as well as protection measures either through digital panels or direct notifications to mobile phones (Zielinski and Botero, 2020). Regarding mass cruise tourism, the activity has completely slowed down worldwide, and the strategy of both the cruise industry and destinations consisted of reducing activity to zero levels, thus tying down mass mobility at cruise destinations (Renaud, 2020).

Finally, according to the articles analysed, the pandemic has induced a change in the tourists' preferences for visiting low-density areas and nature-based travel options (Mackenzie and Goodnow, 2020; McGinlay *et al.*, 2020; Wen *et al.*, 2020) since they assume that the risk of contagion would be lower. However, this trend has generated an increase in the number of visitors in protected areas, giving rise to parking problems, traffic congestion and overcrowding (McGinlay *et al.*, 2020). In these areas, the situation had to be redirected through measures such as the closure of parts of the facilities, information-awareness campaigns, introduction of new regulations, prohibition of social gatherings or setting up signage (Mackenzie and Goodnow, 2020; McGinlay *et al.*, 2020).

3.4 Recommendations for tourist mobility management in times of COVID-19

This study has found ten articles with recommendations on tourist mobility management during and after the pandemic. According to Sheller (2020), in Caribbean Island States, the current tourism model and its associated tourist mobility not only deepens ecological stress but also establishes differential and inequitable mobility regimes between residents and tourists. Therefore, she suggests that the pandemic should be used as the catalyst to move towards a more sustainable collective tourism model in which (1) the rights of local communities are recognised and empowered and (2) the tourism activity reports benefits to local communities. Achieving these goals is not an easy task, but the reduction of international mobility and the increased domestic tourism activity could help put these dynamics in motion.

Most of the articles analysed suggest that tourist mobility at destinations has to be managed via the application of artificial intelligence and smart tourism measures (Montanari, 2020; Wen *et al.*, 2020; Chhabra *et al.*, 2020), but also through collaboration between public authorities to guarantee social equity in accessibility and avoid overtourism (McGinlay *et al.*, 2020; Chhabra *et al.*, 2020; Ioannides and Gyimóthy, 2020). For instance, Capolongo *et al.* (2020) proposes a decalogue of actions and opportunities in the short, medium and long term in the context of a pandemic to guarantee public health. Among these ten actions, the author recommends that during the pandemic, (1) city schedules should be made more flexible to avoid congestion of public places and services, (2) a smart and sustainable mobility network should be planned and (3) accessibility to cultural and tourist sites should be rethought. Wen *et al.* (2020) and Montanari (2020) also consider that the pandemic could be an opportunity to promote smart tourism as a destination management strategy and to improve the tourist experience through itinerary recommendation, intelligent queue management, traffic and mobility control systems. Chhabra *et al.* (2020) recommend creating an interactive and integrated technology system to reduce dependence on private automobiles. Zielinski and Botero (2020) propose strategies to control the carrying capacity of the beaches by monitoring the area. Finally, in the area of cruise tourism, it is proposed that destination managers choose to limit cruises through taxes and regulation, taking advantage of the current crisis so the cruise industry moves towards greater sustainability and avoiding overtourism of the destination (Renaud, 2020). The development of a multiscale approach would aid mobility management in future pandemics (laquinto, 2020).

3.5 Future perspectives on the effect of the pandemic on tourist mobility and travel behaviour

Despite the uncertainty COVID-19 represents (Ioannides and Gyimóthy, 2020), nine articles provide future perspectives on the new reality the pandemic will mean for tourists' mobility at destinations and the reconfiguration of tourist mobility at different geographical levels.

A recovery in tourism is expected (Gössling *et al.*, 2020), albeit with significant changes in planned travel behaviour during and after the pandemic (Li *et al.*, 2020). COVID-19 has induced changes in travel behaviour, and they imply the adoption of decisions that alter the tourism model we have had so far. Working with local communities will be fundamental to the regenerative process tourism will undergo (Sheller, 2020).

Most of the papers analysed agree that international mobility will be reduced during the pandemic and that domestic tourism activities could be maintained after the pandemic. The pandemic has tended to put value in the landscape assets of the territory that surrounds us beyond the idealized images of remote places (Wen *et al.*, 2020; Mackenzie and Goodnow, 2020). In this regard, it is estimated that tourists will look for more deliberated trips with an emphasis on avoiding overcrowded areas and trying to reduce the ecological footprint associated with their activity (Wen *et al.*, 2020). Therefore, micro-adventure tourism will increase (Mackenzie and Goodnow, 2020), leading to a reconfiguration of tourism mobility at national and regional levels.

The increased domestic tourism activity will probably generate a greater need to implement mobility flow management strategies in highly crowded areas. Therefore, public authorities will have to rethink how they provide sustainable mobility solutions to effectively reduce the ecological footprint associated with tourism mobility. Strategies to foster the use of sustainable transport means will be required as well as strategies to reduce the risk associated with a potential increased and prolonged use of private vehicles, as demonstrated during the first year of the pandemic (Chhabra *et al.*, 2020). The emerging challenges related to this increased propensity to use private vehicles are demanding and difficult to manage. For example, the survey-based study of Li *et al.* (2020) showed that Chinese tourists indicated an increased willingness to travel by private vehicle, avoiding the use of what, before the pandemic, had been the main transport mode used for domestic holidays in China: the rail. In a similar way, Bulgarian tourists also revealed their preferences for travelling by private transport over other transport means (Ivanova *et al.*, 2020).

In mass tourism destinations, such as coastal areas and top urban destinations, a considerable volume of tourist activity is expected during the pandemic whenever the public authorities allow it. Therefore, it is necessary to implement smart tourism measures to regulate the behaviour of tourists and visitors (Zielinski and Botero, 2020; Wen *et al.*, 2020). In fact, according to Renaud (2020), the post-COVID-19 era could induce the adoption of policies promoting the sustainable development of tourist areas seeking the quality of places with a balanced and reasonable presence of tourist activity rather than the quantity of tourists visiting tourist places.

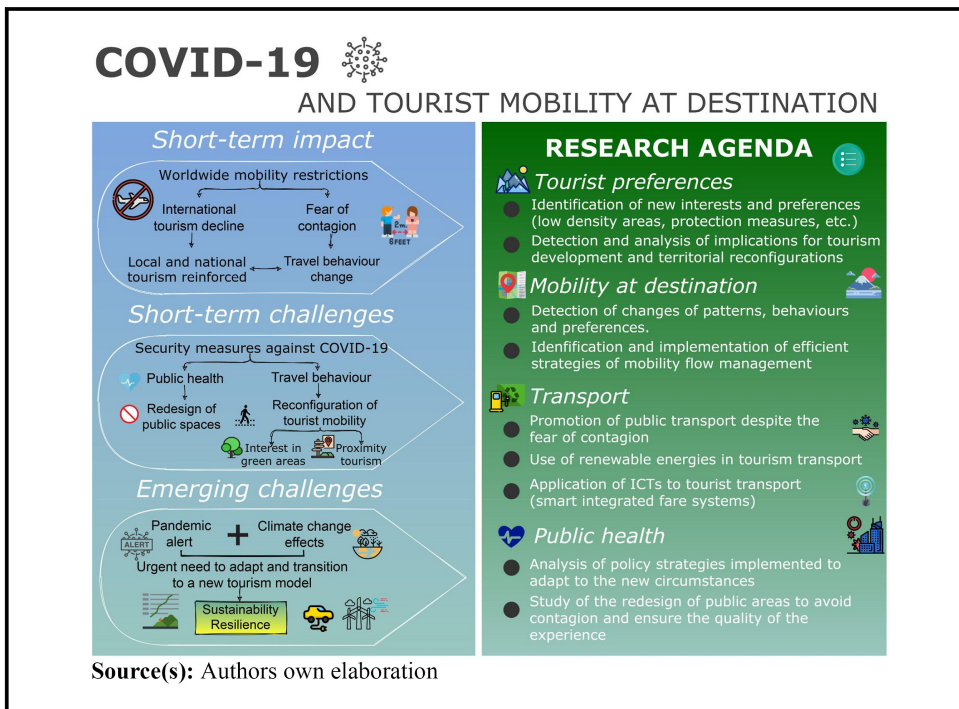
4. Discussion

The literature review emanates several concepts related to the impact of COVID-19 on tourist mobilities at destinations discussed in this section. This section is structured following the diagram presented in Figure 2. First, the short-term impacts of COVID-19 on tourist mobility at destinations are discussed. Second, the short-term challenges for the management of tourist mobility at destinations are reviewed. Third, the emerging challenges in the context of potential new pandemics and exacerbated climate change effects are examined. Finally, the study is concluded with a discussion about the future research agenda on tourist mobility.

4.1 Short-term impacts of COVID-19: global disruption with local impacts

The current pandemic has caused obvious changes derived from travel restrictions but also linked to tourist behaviour. In the first instance, during the first months of the pandemic, the sudden stop

Figure 2 The effects, challenges and research agenda associated with COVID-19 and tourist mobility



in world tourism activity caused a sudden change from the “overtourism” model to the “non-tourism” model (Ioannides and Gyimóthy, 2020; Gössling et al., 2020). Global mobility restrictions caused a huge decline in international tourism and, when national lockdown measures were reduced, local and proximity tourism was reinforced (Laquinto, 2020; Wen et al., 2020). However, the fear of contagion has induced changes in tourists’ preferences and travel patterns (Chhabra et al., 2020; Mackenzie and Goodnow, 2020). Thus, the short-term impact of the pandemic on tourist mobility has been characterised by some types of tourism (i.e. cruise tourism, mass tourism, remote adventure tourism) that halted to ground zero and a resurgence or empowerment of short-haul tourism and leisure.

4.2 Short-term challenges linked to tourist mobility: alteration in travel and tourist behaviour

Not only have tourists have generally chosen different destinations to visit, but they have also undertaken distinct mobility patterns at destinations. Ensuring the health of citizens in general and tourists in particular has been key to facing the short-term challenges derived from the worldwide spread of the virus. Domestic tourism in times of COVID-19 has been a circumstantial decision of the tourists and the governments to minimise social interactions and economically support the tourism sector. Moreover, to prevent contagion, strategies related to mobility management at destinations have been implemented to achieve a difficult equilibrium between business and consumer interests and perspectives. Tourists have made changes in their behaviour at destinations, and public authorities and private stakeholders have implemented strategies to reduce social interaction, avoid the overcrowding of places, and minimise the negative impact on the economies linked to leisure and tourism.

The articles analysed indicate that in the short term, there has been (1) increased interest in short-haul and proximity tourism (Mackenzie and Goodnow, 2020), especially in green spaces and

protected natural areas (Jiricka-Pürerrer *et al.*, 2020) and (2) a clear and worrisome growth in the use of private transport in order to avoid social interaction in public transport and stations (Jiricka-Pürerrer *et al.*, 2020; Li *et al.*, 2020; Wen *et al.*, 2020). The pandemic has evidenced that it is not easy to reach a consensus on the desire of the population to escape to hypothetical areas of lower population density and policies of mobility management. In fact, public authorities have tended to limit access to green areas, especially in and around metropolitan areas, to avoid overcrowding and minimise the risk of contagion (Jiricka-Pürerrer *et al.*, 2020). This has highlighted the need to use smart tourism measures to manage mobility (Zielinski and Botero, 2020) and to increase the availability of pedestrian and green areas to guarantee accessibility for the entire population (Jiricka-Pürerrer *et al.*, 2020; Mackenzie and Goodnow, 2020).

4.3 Emerging challenges: opportunity to configure a new tourism model?

Until current times, transport and mobility have been some of the most questioned components of tourism due to the negative externalities they generate both at the level of GHG emissions and at the level of destination management (congestion, noise, pollution, conflicts between residents and tourists, unequal distribution of wealth, etc.). The prior-to-pandemic tourism model, therefore, as a fundamental part of the mobility of the Anthropocene, not only deepened ecological tensions but also exacerbated existing social conflicts and inequalities (Sheller, 2020). As we have seen in the present literature review, most of the articles analysed agree that the pandemic could represent a turning point to promote an alternative tourism model based on the protection of natural and cultural biodiversity and the use of local resources in the context of global change alert (Ioannides and Gyimóthy, 2020; Sheller, 2020). Nevertheless, these are opinions based on observable short-term facts. Thus, future research will have to analyse whether an effective transition towards a new tourism model is under configuration or not.

According to the literature analysed, all mobility management measures that could be articulated in the short term to reduce the risk of contagion should have a long-term horizon that allows facing the challenges an unsustainable mobility model has posed so far with the environment and with the welfare of the population (Gutiérrez *et al.*, 2020). However, it is possible that the implementation of measures and strategies that seek to reduce the negative externalities of tourism activity will be questioned, especially by tourism companies with a dubious contribution to the environment, such as the case of the mass tourism industry (Renaud, 2020), or companies that do not respect the rights of workers or local communities (Ioannides and Gyimóthy, 2020; Sheller, 2020). This is why in the post-pandemic era, greater social, psychological and financial investment must be allocated in disadvantaged places to reduce the inequalities that for half a century have deepened the expansionary policies of the tourism sector (Mackenzie and Goodnow, 2020; Sheller, 2020).

Tourists are likely to express a new interest in the hygiene and cleanliness of destinations, the presence of good medical facilities and opting for destinations with less population density (Wen *et al.*, 2020). Short-haul mobility could represent not only an opportunity for rural destinations and nature-based destinations (Mackenzie and Goodnow, 2020) but also a challenge for mass tourism destinations (Jiricka-Pürerrer *et al.*, 2020). Emerging challenges are now focused on ensuring accessibility to tourist sites in a socially fair and environmentally sustainable way.

Therefore, the pandemic could help to move away from over-tourism and its adverse effects, seeking a more balanced development in demanded natural areas (Mackenzie and Goodnow, 2020; Wen *et al.*, 2020) in highly touristic city centres and tourist attractions (Jiricka-Pürerrer *et al.*, 2020) or crowded coastal destinations (Zielinski and Botero, 2020).

However, this opportunity provided by the pandemic can only materialise through the monitoring and management of tourist mobility both in urban and in natural areas. Hence, on the one hand, to enhance the tourist experience at the destination, the implementation of smart tourism measures (i.e. traffic control, queue management, itinerary recommendation, etc.) will be required (Montanari, 2020; Wen *et al.*, 2020). On the other hand, to reduce the ecological footprint associated with

carbon-dependent transport modes, it will be necessary to adapt the transport systems towards a zero-carbon net emission.

4.4 Future research agenda

This literature review has shown that there is a significant deficiency of both conceptual and empirical studies about the impact of COVID-19 on tourist mobility at destinations. The articles analysed agree that COVID-19 could catalyse the advancement towards a more sustainable mobility model at destinations within the current paradigm of global change (Gössling *et al.*, 2020; Sheller, 2020). Thus, we expect an increased volume of publications during the coming months seeking to demonstrate the (in)effectiveness of certain measures on tourist mobility management to reduce the spread of the virus, as well as to determine whether there has been a change in tourist mobility patterns at the destination or not.

During the pandemic and in the post-pandemic era, we consider that the literature on the analysis of tourist mobilities will be centred around four main topics, as presented in Figure 2.

First, studies on tourist mobility will have to analyse how socio-economic changes due to the impact of COVID-19, the perception of risk of contagion on long-haul trips as well as the increased state surveillance over tourism mobilities, and a higher valuation of proximity tourism, could change the behaviour of tourists as a whole (where they go, how they go and what they do) (Mackenzie and Goodnow, 2020). It is important to identify the factors behind the preference for selecting one type or destination over another and the different ways of moving within them. In this context, tourist segmentation studies will be required to properly detect and analyse the implications for tourism development and territorial reconfigurations. For example, the enhancement of domestic tourism could be an opportunity for territories with lower population density to develop a tourism model based on cultural and natural diversity (Wen *et al.*, 2020). In this sense, it is necessary to analyse how these changes in the way of doing tourism affect local communities both at the level of economic development and at the level of conservation of the territory and its values. In fact, there might be an increased desire for close-up and low-carbon micro-adventure experiences related to well-being tourism in natural areas (Mackenzie and Goodnow, 2020).

Second, studies on tourist mobility will have to detect and analyse potential travel behaviour changes at destinations, as well as how the strategies implemented have impacted these changes. Future empirical studies could be related to the analysis of mobility patterns at destinations, which may have considerably changed considering not only that the profile of tourists at tourism destinations has suffered a variation compared to previous years due to state surveillance and control over tourism flows, but also that some tourists might have opted to reduce their mobility at destinations or to just avoid them. This immobility might have caused impacts both in the emotional well-being of tourists and the tourist-oriented economies. In fact, regarding the former, future studies will investigate the relationship between mental health and holidays and will identify the impacts immobility has had on people's health. Regarding the latter, studies will analyse the negative impact on tourism-oriented businesses, but also will have to deal with the new scenario of destinations specialised in the meetings or events industry. These destinations face the challenge of adapting to the situation induced by the pandemic, in which online or hybrid events have grown significantly, replacing the large face-to-face events that generated high economic income for destinations. Furthermore, future empirical studies are likely to establish the bases of action for future health alert situations such as the current one. For instance, Zielinski and Botero (2020) consider the estimation of social carrying capacity indexes on beaches to avoid overcrowding and minimise the risk of contagion of utmost importance. This type of calculation could also be applicable in other territorial contexts, such as urban centres or natural parks (Capolongo *et al.*, 2020; Wen *et al.*, 2020; Zielinski and Botero, 2020). However, it is important to support the development of these strategies with studies that analyse their effectiveness.

Third, and linked to the previous research lines, studies on tourist mobility at destinations will have to explore how tourism destinations foster the use of sustainable transport modes such as public transport or non-motorised modes considering the fear of contagion and the willingness to avoid social/physical interaction. In the same way that during the pandemic, tourists may choose to use private transport to move within destinations, residents of tourist destinations may show some reluctance to use public transport for fear of contagion from strangers (tourists). This needs to be closely scrutinised, and further research is needed to configure safe, inclusive, competitive and low-carbon emission transport systems (Capolongo *et al.*, 2020; Chhabra *et al.*, 2020).

Finally, more practical research on public health is needed to guarantee the quality of life of residents, the quality of the tourist experience and the adaptation of tourist activity to climate change effects. Reducing motorised mobility, devoting more space to pedestrians and cycle lanes and fostering the use of public transport must be part of COVID-19 recovery plans. Therefore, researchers and practitioners must monitor and rethink how tourist mobilities take place and how the side effects are corrected and redirected.

5. Conclusions

Although the COVID-19 pandemic has had a historical impact on global human mobility, it has been especially intense in the case of tourism-related mobility. Besides the immediate and direct short-term impacts on travel behaviour, mainly linked to mobility restrictions and the fear of contagion, most studies coincide in forecasting diverse, deep and long-term effects. Moreover, these effects should be contextualised in a global context of growing consensus about the need to rethink the human–environment relationship in order to promote more sustainable tourism adapted to the emerging challenges of climate emergency and growing social inequalities (Brouder, 2020; Cheer and Lew, 2017; Hall, 2019).

Our study has reviewed the first publications analysing these multiple impacts and has focused its attention on the effects on the tourists' mobility during their stay at destinations. We have identified multiple short-term effects and emerging challenges. Most of them are related to changes in tourists' behaviour and preferences, local/national authorities' responses to new public health requirements, and new limitations of tourism offers due to the crisis of the sector.

Since the literature review was conducted just after the first year of the SARS-CoV-2 disease, the published studies have been mainly focused on the short-term effects of the pandemic. In that context, the growing interest in short-distance and national tourism, the increase of visits to natural and rural areas and the severe decline of the number of visitors in mass and urban destinations have commonly been identified as key issues. Nevertheless, there is a lack of studies that provide empirical evidence on how these phenomena are reproduced in diverse territorial contexts. Thus, it is expected that this deficit of published studies and reports should be resolved in the forthcoming months.

In spite of this, we have identified three emerging themes that will allow us to estimate possible changes future tourist mobility in destinations will undergo due to the effects of COVID-19. In the first place, there is a need to deepen the understanding of changes in tourists' preferences and behaviour during their visits. We believe new factors that help redefine the interaction between tourists' mobilities and the cities and regions visited will emerge. For instance, the decisions to move with more or less intensity (or just not move at all) during the holidays, the use of public transport, the walking behaviour in urban areas or the emerging interest in open and natural spaces, among others, most probably will change and should be deeply studied. Therefore, it will be of special interest to revise and extract lessons on how the diverse destinations have tried to promote a more sustainable tourists' mobility in a post-COVID-19 context. Third and last, analysis from holistic perspectives will be necessary to identify the role the pandemic and the related changes in travel behaviour will play in the global process of the imminent need to move towards a green economy and a decarbonised society model.

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