

## A Systematic Review on Bicycle Tourism: Concept, Issues, and Future Directions

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**Abstract:** Cycling as a mode of transportation during vacation is receiving growing popularity. Bicycle tourism is a niche tourism concept that should be explored and needs to receive more attention. The purpose of this research is to outline the concepts and to identify the state of academic research, issues, concerns, and gaps in tourism literature regarding bicycle tourism. Published academic works of literature from 2009 to 2019 were collected from a variety of academic and scholarly databases. The systematic review employed the PRISMA guidelines accompanied by a checklist resulting in the identification of 43 articles published in peer-reviewed journals related to bicycle tourism. The outcomes of the review reveal in-depth definitions of bicycle tourism, research issues, and the future direction of bicycle tourism in Asia; however, no previous study that focused on bicycle tourism based in Kuala Lumpur, Malaysia. The majority of previous researches on bicycle tourism focused on the Western countries' tourism destinations, such as the U.S, UK, and France. This review contributes to shaping the outline for the concepts, issues and future direction of bicycle tourism to the existing literature on bicycle tourism. Furthermore, this study identifies key research gaps and suggests future studies in the area of bicycle tourism.

**Keywords:** Bicycle Tourism, Bike Tourism, Cycling Tourism, Bicycle Touring, Cycling Tourists

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### Introduction

Bicycle tourism refers to a spectrum of cycling activities, with an emphasis on cycling as a fundamental component of a journey outside an individual's immediate home region. Recreational bicycle tourism activities range from full-day or part-day activities to a long day touring holiday. The supporting cycling activities are regarded as an essential strategy to promote advance bike riding as well. There are also numerous initiatives in stimulating an independent cycling activity, these such initiatives will generally involve the construction of marketing campaigns.

Raadik, Cottrell, Fredman, Ritter, and Newman (2010) stated that bicycle tourism is a new sector that needs development to ensure the growth of the industry. The government can support initiatives by establishing relevant policies and infrastructures to promote more bicycle use in targeted tourism areas. By cycling between destinations, tourists can help reduce the amount of carbon footprint over the holidays. Gazzola, Colombo, Pezzetti, and Nicolescu (2017) suggested that the development of bicycle tourism can also highlight other tourism products along with the destinations as tourists explore through destinations by cycling, they may encounter the restoration of beautiful architectures and landscapes.

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Recently, there is a growing interest in research to investigate bicycle tourism, particularly on tourists' perceptions towards this emerging tourism sector (Meng & Han, 2016). The increased interest is led by the escalating demands for cycling tourism which help in shaping the positive image, not only based on what the tourists perceive before traveling, but also during their vacation as well as in their future journey. A strong, positive and distinctive image is associated with cycling tourism can positively influence a potential tourist in decision making who may have limited information about the destination that he or she intends to visit (Thomas, Jaarsma, & Tutert, 2013). Therefore, the aim of this paper is to provide an in-depth systematic review of the concepts and issues emerging in the bicycle tourism sector. In addition, this study seeks to identify and recommend the future direction of this niche tourism industry.

## **Background of the Research**

Cycling tourism is a travel experience that focuses on the bicycle as the primary mode of transport for tourism purposes. Cycling tourism combines particularly suggestive localities (whether mountain range, countryside or urban scene). According to Gazzola, Pavione, Grechi, and Ossola (2018), cycling can be a tourism feature to enhance the relationship between biking and the discovery of a destination. As an emerging phenomenon, cycling tourism calls for further exploration to understand the development and the applicable business model. Cycling is also an ecological and ergonomic means to move through and get to know various zones and territories. Importantly, Michal (2014) stated that bicycle is – both nationally and internationally – considered as an important element of a sustainable transport model. The advantages associated with cycling are not only related to transportation and ecology but also to health.

Polish Tourist and Sightseeing Society defines a tourist trail as a “track segregated in the area that is used for excursions, marked with unique blazes (symbols) and equipped with information facilities, which ensure that a tourist without any specific skills or experience can safely cycle and calmly go along in every season and any weather conditions.” Tourists commonly make their holiday decisions on the availability of tourism offers that are valuable for the tourism experiences embedded in the community while they look for tourism opportunities that integrate the socio-cultural dimension with the environmental one, promoting a genuine exchange between tourists and locals.

## **Research Objectives**

1. To identify the concepts of cycling tourism discussed and elaborated within academic research in the area of bicycle tourism and provide a foundation for future investigations and studies.
2. To determine research issues, concerns, and gaps in bicycle tourism research.

## **Research Question**

1. What is the state of academic research in the area of bicycle tourism?
2. What are the research issues, concerns, and gaps in bicycle tourism research?

## **Significance of Research**

Based on the research of this study, people who are involved directly and indirectly will acquire information in more detail about the local tourists and international tourists. The significance of this study is divided into two perspectives. The first one is for academic perspectives. Students are more exposed to the importance of bicycle tourism as it will help them to gain new knowledge in understanding the concepts surrounding this product. Hence, planners can begin to take into consideration the needs of cyclists in other areas of tourism.

Besides the market, the government plays a very important role in boosting the popularity and success of cycling tourism. With the government's attention, cycling tourism can gain benefits by conducting activities to promote places that will subsequently encourage and increase awareness among tourists about the importance of this tourism product.

With the change in government policies, the public sector – bicycle operators especially – can benefit from the development of bicycle tourism as it will gain some income. They can also take initiatives in order to promote their places that will encourage and create more awareness to people about the importance of having this tourism product. This study will be helpful to market bicycle products and contribute to sustaining the sport tourism industry.

## Literature Review

### *Bicycle Tourism*

Bicycle tourism has the potential to contribute to developing a destination economically, socially and environmentally (Faulks, Ritchie & Fluker, 2007). Ritchie, Tkaczynski, and Faulks (2010) defined cycling tourism as the “tourism that involves watching or participating in a cycling event or participating in an independent or organized cycle touring”. The development of motorized transport has once led to a decrease in bicycle tourism. More recently, however, cycling tourism is re-establishing its popularity as global recreation and sustainability (Lee & Huang, 2014). In order to encourage the local growth of bicycle tourism, policymakers and destination planners in certain nations have invested strongly in cycling infrastructure (Pucher, Garrard & Greaves, 2011). In some European nations like the Netherlands, Denmark, or Finland, bike paths and trails have been constructed to increase bike rides and travel demands (Lumsdon et al., 2009). In Asia, cycling tours are a relatively recent phenomenon, and the potential of cycling tourism has only been recognized by a few Asian nations. Taiwan, for example, has dedicated resources to develop cycling facilities and bike routes that can boost cycling tourism and create its own image as a cycling destination for visitors (Lee & Huang 2012).

Bicycle tourism has its own characteristics: cycle or excursion from the homegroup, cycle journey from one day through several days with a time span, non-competitive bike travel, and travel cycling (Ho *et al.*, 2015; Lumsdon, 1996). Bicycle tourism differs from leisure cycling in which that it takes place only during a period of fewer than 24 hours or one night in a leisure period (Ho *et al.*, 2015; Ritchie, 1998).

Cycling tourism can be divided into competitive and non-competitive activities. Non-competitive cycling is also commonly called recreational cycling (Lamont, 2009). In recreational cycling tourism, tourists have an option to hire at the destination or they can book a pre-planned cycling tour for their trip (Ritchie, 1998). Such activities can help the local economy and offer tourists a green opportunity to explore the place they are visiting. (Handy, Heinen & Krizek, 2012). Not only contributing to the local economic development, but tourists can also take advantage of the health benefits from cycling (de Hartog, Boogaard, Nijland, & Hoek, 2010; Teschke, Reynolds, Ries, Gouge, & Winters, 2012).

Bicycle tourism is now developing in large cities as cycling needs bicycle lanes which are made available in the cities by authorities, more than the countryside. For this reason, bicycle tourism can enhance the development of urban tourism. Construction of longer trails and new cycling paths, bicycle stalls and parks will make it possible for visitors and urban residents to enhance their share in urban tourism. Although the previous literature showed that cycling tourists can contribute to sustainable growth, some scholars questioned the sustainable claims of cycling tourism at their destinations (Weed *et al.*, 2014).

### ***Issues on Bicycle Tourism***

Teschke, Reynolds, Ries, Gouge, and Winters (2011) mentioned that cycling is an active mode of transportation with a range of individual and public health benefits. Cycling in the motorized era comes with obstacles, one of them is the road. Highways, for example, are not safe for cyclists. Besides, the arguments about the rumble strips and shoulders have been discussed because the existence of the strips frequently contributes to the lack of shoulders because it interferes with the cyclists. Another issue raised by cyclists is the road conditions that are not safe for cycling. The suggestion is to raise the issue of route safety to the government to help improve roads to enhance travelers' experience when using the bicycle as their transportation. A cycle route must be fitted closely to the criteria of safety, directness, comfort, and cohesiveness.

Other factors contributing to the cycling tourism issues are weather, signage, parking space, and careless drivers on the road. There are some drivers who drive aggressively and cause fear of cycling tourists. In some cases, trucks passed by very closely to bicycle routes which could harm cyclists. Due to the absence of the shoulders and the presence of rumble strips, cyclists sometimes are forced to the left of the white line on the road (Downward & Lumsdon, 2010). Although safe cycling infrastructure can prevent the great majority of such experiences, it is also worth stressing that near-misses are not necessarily rare due to the current road system. Many happen because of the carelessness and reckless actions of other road users (Dieterle, Schafer, & Vier, 2018). Dill (2009) mentioned that the path network systems should be created and interrelated routes ought to be found far from the streets and roadways with the presence of overwhelming vehicular traffic. This can decrease noise pollutions as it is also able to create a more pleasant experience.

Weather is also an issue when the day can turn from lovely weather to a miserable one within a brief amount of time. For this reason, cyclists have to get ready to deal with the weather change. Japan experiences a serious problem in bicycle tourism which is related to the crisis of the urban transportation environment. The main problem is parking, many cycling tourists illegally park their bicycles around the area near the tourist attractions (Kulczynski & Halpenny, 2015). Hence, it is highly recommended that tourism attractions need to consider providing parking spaces for bikes specifically for cycling tourists. In general, most of the issues on cycling tourism are driven by the lack of education and training in bicycle tourism. Cyclists cycle without knowing cycling rules and drivers are not familiar with road cycling rules. The results come out with cyclists stopping in the middle of the bike lane which poses safety concerns on other cyclists, and some drivers use the cycling lanes as the emergency parking which can hinder cyclists from using the lanes (Brent, 2016).

### ***Impacts on Bicycle Tourism***

Bicycle tourism contributes to positive effects on the environment, economy, and society of the destination area. Environmentally, bicycle tourism does not cause pollution for bikes do not produce fossil fuels (Reeth & Lagea, 2018). The economic impact of bicycle tourism is identified as opportunities for employment for people with interest in this niche tourism sector, and it can decrease the expenditure of tourists as well. The social impact of bicycle tourism, according to Maat and Van (2011), is cyclists tend to have more positive opinions than non-cyclists.

### **Methodology**

We employed a systematic and comprehensive literary research to conduct this study. This systematic review discussed the procedures of discovering a vast amount of tourism-related research papers and setting the criteria for the paper selection to be included in the review. In other words, a detailed and predetermined plan and strategy were developed to derive relevant studies in bicycle tourism, intended to identify concepts and issues as well as make recommendations for the future direction of bicycle tourism.

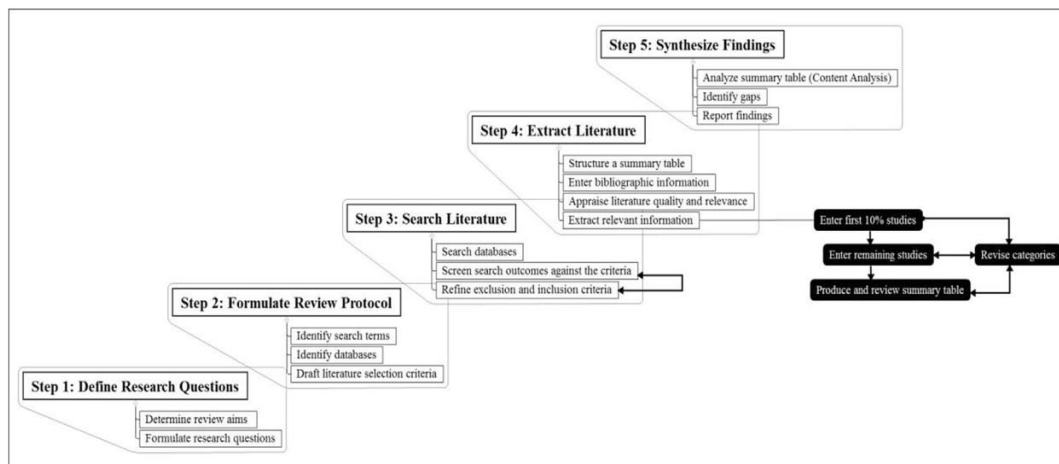
## Data Collection

The steps illustrated in Figure 1 show the systematic review process employed for this study. The process was adapted from a study by Petticrew and Roberts (2006) and another study by Pickering and Byrne (2014). This review started by delineating the review aims and objectives of this study. Based on the objectives, the review protocol was developed in order to guide the literature search. To capture the relevant research for this review, phrases such as “research issues” and “future direction” of bicycle tourism were used in searching.

The adoption of the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) approach for this review was intended to develop the article selection criteria, to determine data sources, and to report findings related to transformative concepts and issues in travel and tourism (Crowther & Guler, 2010; Moher, Liberati, Tetzlaff, & Altman, 2009). Figure 1 exhibits the flowchart in accordance with the guideline of Preferred Reporting Items for Systematic review and Meta-Analyses (PRISMA; Moher *et. al.*, 2009). The terms searched were identified through prior reviews of bicycle tourism, as the assessment was progressing.

The further selection criteria considered include studies on related topics, not just focused on the local community but also outside of the country. The derived papers were assessed based on the abstracts and the full text. A screening process was undertaken on the 44 full texts retrieved, by reviewing for the eligibility to be included in the final review analysis. The studies that failed to meet the criteria were discarded at this stage, but they could be used to provide further explanations about the review findings.

For the papers that met the criteria and were considered eligible for the final analysis, a thematic analysis was conducted by developing the summary table with patterns and themes intended to filter qualitative information gathered from the review. The aims of the thematic analysis research were to summarize the information and to interpret the results.



**Figure 1.** Systematic review process  
 Source: Adapted from Pickering & Byrne (2014)

## Systematic Review and Tourism

To our knowledge, very few systematic reviews were conducted in the tourism sector. However, it is also important to note that in some studies, the systematic nature was not clearly expressed resulting in difficulties to replicate the studies. Thus, while tourism research had already produced a few systematic reviews, fewer actually met the systematic standard, and thus, posturing little chance for a replication.

## **PRISMA (Preferred Reporting Items for Systematic Review and Meta-Analysis)**

The PRISMA approach was intended to assist in enhancing the systematic review reporting. The utilization of PRISMA in this study aimed to ensure the review process was systematically conducted and reported transparently.

### ***Searching***

In determining what was and what not to be retrieved, the search words for a systematic assessment were the most significant component of the systematic review. The selection of search words can influence the focus direction of the discussion. Thus, detailed attention was required for the formation of search words and keywords. It was also very crucial to define the keywords used to avoid generating information not related to the study.

Apart from that, some additional commands were also featured in the search which ensured that the retrieved paper was controlled. First of all, it ensured that the only language to be returned was in English as it is the only language the authors are fluent in. Secondly, to ensure consistency of integration and review, the papers were included as articles or reviews. Finally, only papers published from 2009 to 2019 were included.

An electronic search was run within Emerald Insight, Google Scholar and Science Direct from 2009 until 2019. These databases were chosen because they provided a relatively comprehensive scope for academic articles related to the tourism sector. By exercising certain orders, the search was only focused on finding titles, abstracts, and keywords in the more concentrated segments of papers, ensuring an enhanced search with focused outcomes. The great majority of the keywords utilized were developed by researching the keywords used in relevant studies. The research also sought plurals, spelling differences, synonyms, and acronyms and added additional details to the search. Then, the search was shared with a group of academics whose research issues are related to bicycle tourism to ensure the adequacy of the search terms, to identify additional potential or possible shortcomings and to generate cultural ideas and conditions.

### ***Selecting***

As the total number of returned papers was just less than 50, it was important that there were systematic and well-defined criteria regarding the inclusion and exclusion of papers returned by the search. In comparison with the bicycle tourism literature in which it was found, the future focus of the study was found to be limited. Therefore, a more inclusive method would probably retrieve and analyze a greater quantity than a less inclusive method, making the review more complete and more comprehensive. There was no limitation imposed on the respondents.

The criteria for the evaluation were simply to be a primary study that included a comparison of two states, each quantitatively or qualitatively, with a particular focus on different locations, different time periods, and different systems. No restrictions were imposed on the type or even the presence of the control to include as many temporal and other comparisons as possible. Being relatively new, there was less research that was highly scientific and empirical. Rather explorative and qualitative research often needed in this field. The type of outcome was not restricted, nor was the measurement made of the outcome or the number of times. Once again, the objective was to include as many papers as possible, from which further examinations and assessments would be carried out.

### ***Reviewing***

Titles and abstracts were then manually scanned to exclude those papers whose topics seemed irrelevant. After scanning the abstracts, the papers were evaluated, and their eligibility was further discovered. The abstracts, introductions, and methodologies were thoroughly read to determine the content's adherence to the subject, for instance, in the tourism context, as well as with issues and future directions. For various reasons, several papers were excluded.

Ultimately about one-quarter of the articles were excluded because they were not judged by exclusion criteria and, although they were possible to be used abstractly, the other three quarters had a different focus from tourism and its effects. However, many of the excluded articles contributed to the creation of concepts and contexts throughout this study, and in specific through the literature review. To ensure that a systematic method was used again, the criteria for inclusion were created as a single idea used to guide inclusion decisions.

## Analyzing

The papers were read fully after the final phase of exclusion and specific details were noted. In order to summarize the document studied effectively and efficiently, these predetermined details of each research were recorded. The summary provided a platform for qualitative analysis and also guaranteed certain empiricism, coherence and quantitative assessment of the articles studied. Besides that, it also contributed to a platform for better understanding and informed criticism.

A table was created to collect these details and provide an extremely simple platform for data visualization and analysis for each topic. The table would contain several basic details such as topics, the authors and date, sample data, sources, and the locations of studies. Furthermore, some of the focused areas included thematic measures which might be relevant to one subject but not the others.

## Findings

### Summary of Sources included in the Review

Table 1 identifies 54 sources included in the systematic review. The findings were summarized in 42 refereed journals, 2 chapters in books and 10 reports. After reading all the identified articles, a database table of the articles was formed (see Table 1), with each row containing all reference information for a given article: Author (Date), Publication Type, Article Title, Location, Date, Sample Size and Sources.

From the 54 articles, 28 articles were derived from Google Scholar, 13 articles from Taylor and Francis Online, 3 articles from Emerald Insight and 10 articles from Science Direct. These articles were identified through database searching and also from other library resources. There were some articles excluded because they did not fit the criteria of the study. Many of the studies used primary and secondary data. A total of 26 studies used primary data, 17 studies used secondary data and 10 studies used both primary and secondary data. The identified literature was tabulated according to the year published.

Table 1: Summary of Sources included in the Review

No.	Authors (Date)	Publication Type	Article Title	Location	Data	Sample Size	Sources
1	Dill, J. (2009).	Refereed Journal	Bicycling for Transportation and Health: The Role of Infrastructure. Journal of Public Health Policy.	US	Primary	n= 166	Google Scholar
2	Mintel (2009)	Report	Leisure intelligence: Cycling holidays.	UK	Primary	n = 623	Google Scholar
3	Lamont, M. (2009)	Refereed Journal	Independent Bicycle Tourism.	Australia	Primary & Secondary	n= 33	Science Direct
4	Brown, T. D., O'Connor, J. P. & Barkatsas, A. N. (2009)	Refereed Journal	Instrumentation and Motivations for Organized Cycling: The Development of the Cyclist Motivation Instrument (CMI)	Australia	Primary	n= 422	Google Scholar
5	Downward, P. & Lumsdon, L. (2009)	Refereed Journal	The Development of Recreational Cycle Routes: An Evaluation of User Needs	UK	Primary	n= 373	Google Scholar

6	Weston, R., Davies, N., Peeters, P. M., Eijgelaar, E., Lumsdon, L., McGrath, P., & Pickett, P. C. (2012).	Report	The European Cycle Route Network	Europe	Secondary	-	Google Scholar
7	Ritchie, B., Tkaczynski, A. & Faulks, P. (2010)	Refereed Journal	Understanding the Motivation and Travel Behaviour of Cycle Tourists Using Involvement Profiles	Australia	Primary	n= 564	Taylor & Francis Online
8	Gatersleben & Haddad (2010)	Refereed Journal	Who is the typical bicyclist?	UK	Primary	n= 244	Google Scholar
9	Su, J. G., Winters, M., Nunes, M., & Brauer, M. (2010)	Refereed Journal	Designing a route planner to facilitate and promote cycling in Metro Vancouver, Canada	Canada	Primary	-	Google Scholar
10	Tin S., Woodward, A., Thornley, S., Langley, J., Rodgers, A., & Ameratunga S. (2010)	Refereed Journal	Cyclists' attitudes toward policies encouraging bicycle travel: findings from the Taupo Bicycle Study in New Zealand	New Zealand	Secondary	n= 2,469	Google Scholar
11	Quinn, M., & Chernoff, G. (2010).	Report	Mountain biking: A Review of the Ecological Effects	Canada	Secondary	-	Google Scholar
12	Rissel, C., Merom, D., Bauman, A., Garrard, J., Wen, L. M., & New, C. (2010)	Refereed Journal	Current cycling, bicycle path use, and willingness to cycle more-findings from a community survey of cycling in Southwest Sydney, Australia	Australia	Primary	n = 1,450	Google Scholar
13	Xing <i>et al.</i> (2010)	Refereed Journal	Factors affecting cycling for different purposes	US	Primary	n= 581	Google Scholar
14	Pucher J., Garrard, J. & Greaves, S. (2011)	Refereed Journal	Cycling down Under A comparative analysis of cycling trends and policies in Sydney and Melbourne.	Australia	Primary & Secondary	-	Google Scholar

No.	Authors (Date)	Publication Type	Article Title	Location	Data	Sample Size	Sources
15	Balduck, A. L., Maes, M., & Buelens, M. (2011).	Refereed Journal	The social impact of the Tour de France: Comparisons of residents' pre-and post-event perceptions.	France	Primary	n= 396, n= 235	Taylor & Francis Online



16	Lamont, M., & Buultjens, J. (2011).	Refereed Journal	Putting the brakes on Impediments to the development of independent cycle tourism in Australia.	Australia	Secondary	-	Taylor & Francis Online
17	Garrett-Peltier, H. (2011).	Report	Pedestrian and bicycle infrastructure: A national study of employment impacts	US	Primary & Secondary	-	Google Scholar
18	Cox, P. (2012)	Refereed Journal	Strategies Promoting Cycle Tourism in Belgium: Practices and Implications	Belgium	Primary & secondary	n= 290	Taylor & Francis Online
19	Meschik, M. (2012)	Refereed Journal	Sustainable Cycle Tourism along the Danube Cycle Route	Australia	Secondary	n= 354	Taylor & Francis Online
20	Fullagar, S., & Pavlidis, A. (2012)	Refereed Journal	It's all about the journey": women and cycling events	Australia	Primary	n= 40	Emerald Insight
21	Stoffers, M. (2012)	Refereed Journal	Cycling as Heritage: Representing the History of Cycling in the Netherlands	Netherlands	Secondary	Historical	Google Scholar
22	Rotar, J., Gantar, A., Kočiš, D., & Pehnec, M. (2012).	Report	How to Develop Cycle Tourism. CENTRAL EUROPE Programme.	Central Europe	Secondary	-	Google Scholar
23	Thomas, T., Jaarsma, R., & Tutert, B. (2013).	Refereed Journal	Exploring temporal fluctuations of daily cycling demand on Dutch cycle paths: the influence of weather on cycling	Netherlands	Primary & Secondary	-	Google Scholar
24	Weed, M., Bull, C., Brown, M., Dowse, S., Lovell, J., Mansfield, L., & Wellard, I. (2014)	Refereed Journal	A systematic review and meta-analyses of the potential local economic impact of tourism and leisure cycling and the development of evidence-based market segmentation.	General	Secondary	-	Science Direct
25	Roman, M., & Roman, M. (2014)	Refereed Journal	Bicycle Transport as an Opportunity to Develop Urban Tourism – Warsaw Example	Poland	Secondary	-	Science Direct
26	Lenting H. (2014)	Report	Intrinsic motivations for cycling	UK	Primary	n= 335	Google Scholar
27	Kulczynski, C., & Halpenny, A. E. (2014).	Refereed Journal	Sports Cycling Tourists' Setting Preferences, Appraisals, and Attachments	Canada	Primary	n= 57	Taylor & Francis Online

28	Motoaki, Y. & Daziano, R. A. (2014)	Refereed Journal	A hybrid-choice latent-class model for the analysis of the effects of weather on cycling demand	US	Primary	n= 599	Science Direct
29	Pettit, T. & Dodge, N. (2014)	Report	Cycling demand analysis	New Zealand	Primary	n= 358	Google Scholar
30	Lee, C. F. & Huang, H. I. (2014)	Refereed Journal	The Attractiveness of Taiwan as a Bicycle Tourism Destination: A Supply-Side Approach, Asia Pacific Journal of Tourism Research	Taiwan	Primary & Secondary	n= 19	Google Scholar
No.	Authors (Date)	Publication Type	Article Title	Location	Data	Sample Size	Sources
31	Willis, D. P. Manaugh, K. & El-Geneidy, A. (2015)	Refereed Journal	Cycling Under Influence: Summarizing the Influence of Perceptions, Attitudes, Habits, and Social Environments on Cycling for Transportation	US	Primary	n= 31	Google Scholar
32	Aldred, R. (2015).	Refereed Journal	A matter of utility? Rationalizing cycling, cycling rationalities.	UK	Primary	n= 150	Taylor & Francis Online
33	Torres, S., Lalanne, F., del Canto, G., Morales, F. Bustos, J., & Reyes, P. (2015)	Report	City: Sensing and Sensibility on Urban Cycling for Smarter Cities	Santiago	Secondary	-	Google Scholar
34	Kaplan, S., Manka, F., Nielsen, T. A.S., & Prato, C. G. (2015)	Refereed Journal	Intentions to Use Bike-Sharing for Holiday Cycling	Denmark	Primary & Secondary	n=644	Science Direct
35	Nikjoo, A. H., & Ketabi, M. (2015).	Refereed Journal	The Role of Push and Pull Factors in the way Tourists Choose their Destinations	Turkey	Secondary	n=401	Taylor & Francis Online
36	Herman, Z. T. (2015)	Refereed Journal	Serious leisure and leisure motivations among self-identified cyclists.	Cycling Organizations	Primary	n = 92	Google Scholar
37	Ho, C., Liao, T., Huang, S., & Chen, H. (2015)	Refereed Journal	Beyond environmental concerns: Using means-end chains to explore the personal psychological values and motivations of leisure/recreational cyclists	Taiwan	Primary	n = 60	Taylor & Francis Online

38	Privitera, D. (2015).	Chapter in Book	Towards a Competitive Sustainable City: Cycling as an Opportunity	Italy	Secondary	-	Google Scholar
39	Watthanaklang, D., Ratanavaraha, V., Chatpattananan, V., & Jomnonkwao, S. (2016)	Refereed Journal	Measuring the Motivation to Ride Bicycles for Tourism Through Comparison of Tourist Attractions	Thailand	Secondary	n = 798	Science Direct
40	Shipway, R., King, K., Lee, I. S., & Brown, G. (2016)	Refereed Journal	Understanding Cycle Tourism	South Australia	Secondary	n= 20	Taylor & Francis Online
41	Larsen, J. (2016).	Chapter in Book	Experiences at the Tour Down Under Leisure, Bicycle Mobilities, and Cities	Europe	Secondary	-	Taylor & Francis Online
42	Han, H., Meng, B., & Kim, W. (2016)	Refereed Journal	Bike-Traveling as a Growing Phenomenon: Role of attributes, value, satisfaction, desire, and gender in developing loyalty	China	Primary	n=394	Science Direct
43	Han, H., Meng, B., & Kim, W. (2016)	Refereed Journal	Emerging Bicycle Tourism and the Theory of Planned Behavior	China	Primary	n=394	Taylor & Francis Online
44	Zayed, M. A. (2016).	Refereed Journal	Towards an index of city readiness for cycling.	Bicycle-Friendly Community Cities	Secondary	-	Google Scholar

No	Authors (Date)	Publication Type	Article Title	Location	Data	Sample Size	Sources
45	Freitas, A. L. P., & Maciel, A. B. L. (2017)	Refereed Journal	Assessing Cyclists' Perceptions, Motivations, and Behaviors: An Exploratory Study in Brazil	Brazil	Primary	n=502	Science Direct
46	Meng, B., & Han, H. (2016).	Refereed Journal	Effect of environmental perceptions on bicycle travelers' decision-making process: developing an extended model of goal-directed behavior	China	Primary	n=394	Taylor & Francis Online

47	Austroroads (2017)	Report	Queensland State of Cycling	Australia	Primary & Secondary	n= 5,300	Google Scholar
48	Mayor of London (2017)	Report	Future cycling demand in London	London	Secondary	-	Google Scholar
49	Chiu, W., & Leng, H. K. (2017).	Refereed Journal	Let's go cycling: an analysis of tourists' experience on online user-generated content	China	Primary	n=409	Emerald Insight
50	Van Reeth, D., & Lagae, W. (2018).	Refereed Journal	A Blueprint for The Future of Professional Cycling	France	Primary	Archival materials	Emerald Insight
51	Gazzola, P., Pavione, E., Grechi, D., & Ossola, P. (2018).	Refereed Journal	Cycle Tourism as a Driver for the Sustainable Development of Little-Known or Remote Territories	Italy	Primary & Secondary	-	Science Direct
52	Duran, E., Sevinç, F. & Harman, S. (2018)	Refereed Journal	Cycle tourism as an alternative way of Tourism Development in Çanakkale, Turkey	Turkey	Primary & Secondary	n= 35	Google Scholar
53	Šťastná, M., Vaishar, A., Zapletalová, J., & Ševelová, M. (2018)	Refereed Journal	Cycling: A Benefit for Health or Just a Means of Transport? Case Study Brno (Czech Republic) And Its Surroundings.	Czech Republic	Primary & Secondary	n= 383	Science Direct
54	Xu, H. & Yuan, Meng & Li, Jun. (2019)	Refereed Journal	Relationship Between Cycling Motivation, Leisure Benefits, and Well-Being	Netherlands	Primary	n= 312	Google Scholar

The most popular bicycle tourism research sites are in Australia, the United Kingdom, and the USA. Australia and the UK benefit from the presence of universities near the city and from students and scholars who have taken up research accordingly. Although bicycle tourism is clearly a global phenomenon, research has been carried out in relatively few countries to date and this may indicate a knowledge gap.

A thematic analysis of the 54 papers in the sample was provided and characteristics of these papers and the impacts, motivation and future direction of the research captured in them were presented. A motivation to ride bicycles, travel behavior of cycle tourists, motivations for organized cycling were analyzed in this research thus capturing the highest interest of researchers in the area of bicycle tourism. A total of 10 studies were formed in Australia, followed by 5 studies from the US, 4 studies from China, 3 studies from the UK, and followed by other countries. The results show that Australia captures the highest interest of researchers in the area of bicycle tourism. There is the least number formed in Asia. It is not possible to form research in Asian countries since they have the very least number of researchers doing studies in the areas. Based on the findings, there is no previous study of bicycle tourism that was based in Kuala Lumpur, Malaysia.

## Discussion, Recommendation and Conclusion

From the systematic review of 43 relevant research papers, the findings show gaps among the literature. The first gap is the contribution to health by bicycle tourism to cyclists. It comes to no surprise that doing outdoor activities contributes to good health. Cycling tourists can benefit from their physical health rather than those who travel by car. However, the benefits are only measured where a “mode switch” occurs. In other words, studies reporting on the health benefit of cycling do not compare participants in terms of transportation mode opted.

Another gap found is in the discussion of emotion as an impact of traveling. A few types of research discussed that the emotions tourists develop during travel contribute to their choice of transport. On the other hand, studies also reported that cycling can invoke positive emotions in tourists about the destinations (Dill, 2009). Cycling can boost the mood in the same way all physical exercises can make a cyclist happy and feel good. Based on the research, we found that outdoor exercises make a person happier as we connect with nature and experience sunlight plus we get more oxygen. Our findings also suggest that cyclists are attached to their bikes and form strong emotional bonds with them.

## Issues in Research

Bicycle tourism studies are mostly clustered in North America or Europe. Besides, the studies also reported the limited issues explored in this emerging topic. In Asian countries, alternative routes are extensively being promoted to bicycle users but there is no research investigating the number of cycling tourists using the bicycle trail.

Studies that have looked at the perceptions of cyclists about bicycle tourism reported that respondents rate low on the quality of driving, overall road safety, biking services and facilities, entertainment, signage and the quality of driving. The tourists, however, do not have such information about the cycling experience prior to travel, as most information provided highlights the centers’ board, accommodation, biking centers, attractions, and entertainments. It is proven that factors such as scenery, accommodation, attractions and other activities are rated highly to the performance.

Therefore, recommendations on promoting based on the provision development of infrastructure that will include the development of major destination areas of cycle-friendly, thus the information and promotion on alternatives routes will be the potential to increase the growth of bicycle tourism in the tourism developments.

## Conclusion

The number of involvements in recreational activity has increased the contribution to the resurgence of the bicycle as one of the modes of transportation. This development and the promotion of bicycle is a subject that has a little attention to it, this is because there are limited research and coordination conducted, their scope and size in cycle tourism are quite difficult to ascertain, there should be recommendations on promoting based on concerns with the possible future provision of bicycle tourism for tourism development. Bicycle tourism is a growing sector in Europe and the United Kingdom as well as in New Zealand, with specific cycle routes that have been developed for tourists to get involved in cycling tourism. There is a significant number of research that has been conducted in the United Kingdom on the impacts of these cycle tourism activities, their market profile of the tourists that are involved in cycling tourism who are utilizing the routing infrastructure which makes bicycle tourism a major activity in the areas.

Specifically, the finding of this review highlights the impacts of cycling tourism, motivations and behaviors of cycling, the relationship between cycling, and the future direction of bicycle tourism development. This research generates an understanding of cycling tourist typologies and the various impacts of using bicycles as a mode of tourism transportation. More importantly, the number of people participating in cycling has increased in European countries.

Furthermore, this research has noted the evidence of the potential in cycle tourism activity which has benefits to the users and to some of the organizations; it will give the ability to facilitate the growth of cycling tourism in the world of the tourism sector. Certainly, cycling tourism has a good potential in terms of giving benefits to the regional and local communities, however, in terms of development and marketing strategy, it has been hindered due to the lack of information and data at the national, regional and local level. The government needs to take an initiative by giving potential organizations to take a major role in product development, facilitating research and marketing in a consistent way. It is believed that this review will make a little contribution to the future development of cycle tourism.

## **Limitations**

The systematic review method employed for this study was not short of limitations. The most prominent one we experienced was the limited number of articles found that were highly relevant to bicycle tourism. This limitation could be due to the words used to search the articles. The exploration of this topic was rather new in tourism research, and thus we were not quite familiar with a large number of keywords related to the topic. The limited knowledge in keywords could impose a risk on the searching results.

## **Future Research and Recommendations**

From the review, there seems to be a lack of country-specific research on bicycle tourism. Most papers talk about a specific destination- experience. Conversely, there are many qualitative studies regarding this topic. Thus, similar topics can be reinforced through quantitative study and made more applicable and convincing to a wider audience. Importantly, this review does not find any relevant research conducted in Kuala Lumpur, Malaysia.

Future studies should review the top 10 bicycle tourism countries such as the Netherlands, France, and Japan to uncover new and interesting attributes in order to counter the limit on country-specific bicycle tourism destinations. The sector-specific destination attributes, in particular in emerging Asian countries, like Malaysia, should be internationally applicable. Future research should broaden the broad range of international and local perspectives.

Since this study could only concentrate on bicycle tourism, issues and future directions, other extremely important problems and effects still exist, which must be investigated in order to assess the future of literature. Mentioned quite briefly within the literature review of bicycle tourism, the focus of most of the papers are on the developments of bicycle tourism and how to promote the tourism as well as the impacts of bicycle tourism towards the economic, social and environmental growth. And while these elements have been extremely crucial to the study, the author has discovered that the literature that focuses on other elements of bicycle tourism is fewer in comparison.

Thus, there seem to be fewer discussions surrounding the actual actions of tourists, and how to discover the issues in this regard. It is unknown how bicycle tourists are satisfied with these sector-specific destination features. In future research, the method called importance-performance analysis could be used to assess the gaps between the importance and the characteristics of performance destinations perceived by bicycle tourists to identify places for improvement. In terms of recommendation for bicycle tourism in the future, besides developing existing cycling routes and increasing the signages and safety for all bicycle tourists, the proposed actions related to cycling tourism include working with tourism organizations to identify opportunities for promoting cycling tourism and encourage and support business suppliers to explore cycling possibilities and promote bicycle tourism. To ensure tourists that bicycle tourism is safe, the country needs to develop and disseminate cycle maps for on and off-road infrastructure. Tourists are unfamiliar with the places they visited, and we tend to see tourists using maps to explore the country.

Therefore, developing and providing maps to tourists will increase their willingness to cycle around the city. Next is to identify ways to develop and promote visitor attractions along the key trails. Apart from that, provide adequate parking at the beginning and end of selected recreation lanes so that it will be easier for tourists to park

their vehicles. Tourists will never need to worry about the safety of their vehicles. The development and link of cycling tourism strategies and policies with other policy fields (for example health and sustainable transport) require coordination between local, regional and state governments. Lastly, along the journey, bicycle tourists might need to stop by for facilities. Hence, providing appropriate access on recreational trails to water, bathrooms, seats and rest facilities will definitely have positive perceptions from the tourists towards bicycle tourism.

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