Bibliometric Analysis of Published Original Research Articles on Leisure Constraints between 1991 and 2019

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Abstract

Background: The decrease in the frequency and duration of participation in leisure activities has negative effects on the physical, cognitive and psychological health of individuals. In this context, identifying the obstacles, which prevent individuals from participating in leisure activities, may offer important clues to institutions and organizations in taking measures to increase participation.

Methods: The bibliometric analysis method was used in this study. The research was carried out with 306 articles scanned from the Web of Science (WoS) core database between 1991 and 2019.

Results: Studies conducted in leisure area increased systematically according to 5-year periods and mostly authors from USA, Australia and Canada produced them. The mainstream subjects, which attracted the attention of researchers during recent years, are detected to be self-efficacy, segmentation, mental health and fear related to intrapersonal constraint topics.

Conclusion: In order to cope with physical and mental health problems resulting from aging of the world population, and technological developments, and negative effects generated by inactive modern life style, priority should be given to studies on leisure constraints to be conducted on a more comprehensive basis. Another suggestion is to encourage health policies and applications which can increase participation in leisure activities.

Keywords: Bibliometric analysis; Leisure constraints; Mental health; Physical activity; Public health

Introduction

Leisure constraints research aims to investigate the factors that individuals perceive or experience which limit the formation of leisure preferences and/or inhibit their participation and enjoyment in leisure activities (1). Leisure constraints are factors which prevent the individual from participating in leisure time activities, reduce the num-ber of repetitions, break the desire to participate, and eliminate the advantages generated by activity services (2). Early in the 1980s, the idea of "leisure constraints" was initially investigated. Iso-Ahola (3) created a conceptual model to pinpoint the causes of barriers to leisure time. The model was developed by Iso-Ahola and Mannell (4) in

light of the significance of social and psychological barriers in understanding an individual's engagement in leisure activities. nonetheless, three types of barriers were introduced: personal (e.g. stress, depression and anxiety), interpersonal barriers (e.g. relationship with a partner, children or friends) and structural barriers (e.g. financial resources, lifestyle, season, climate and working time) (5). Based on these three types of obstacles, they established a relationship model among preferences, barriers and participation. Crawford et al. (6) developed the "Hierarchical model of leisure constraints" and they placed interpersonal constraints at the very center of the model as the most important of all and structural constraints at the outermost region as the least important. All these studies aimed to exhibit the constraints preventing people's leisure participation.

Leisure constraints gained such prominence among leisure studies that, "World Leisure Organization" presented their latest declaration on it during the 15th World Leisure Congress, organized in 2018 with the theme "Leisure beyond constraints". The participants from around the world discussed the still very much existing (physical, socio-economic, symbolic) barriers to people's leisure participation and the themes of coping with each and every one of them (7).

The most significant reasons why leisure restrictions are still relevant and well-liked nowadays are the previously listed ones as well as the detrimental impacts of the modern lifestyle. Furthermore, health spending across all countries is expected to average $20 trillion (8). For this reason, the importance given to this issue is increasing, especially in terms of public health. Recreational activities can be in different forms (physical, social, artistic, etc.), related to the interest and need of the individuals participating in these activities (9). Besides, leisure time activities are beneficial in terms of several aspects such as physical health (7-10), mental health (11, 12), social (13), wellbeing (14) etc.

Due to all these benefits, leisure is also used for different focus groups such as elderly people (15-17), people with special needs (18-20); students, addicts (21-25) etc. As a result, understanding the meaning and significance of the leisure constraints, as well as assuring participation and continuity, are crucial in terms of society's overall wellness level (26). In addition, leisure, quality of life, and health are all notions that are intertwined (27). This study contributes to the literature, since it is the first bibliometric study aiming to provide a detailed pattern of leisure constraints research during the last thirty years. The results can also help future researchers in terms of showing them the historical development of the most popular leisure constraints topics and the trends in future ones.

Methods

Bibliometric analysis
A bibliometric analysis is defined as a method which analyses data obtained from written sources such as journals, books or articles within the context of citations, names of authors, key words, study methods and statistical techniques (28); evaluates the performance of countries, institutions and authors; maps and visualizes the structure and dynamics of the concerning discipline and reveals evolutionary process of the field at large (29-31). While presenting this information, bibliometric studies help researchers to reduce their possible subjective judgments and provide more objective results (32, 33) and they shed light on the emergence of a research field and its changes in its historical process (28).

Bibliometric Indicators
With the CiteSpace II software, researchers obtain visual maps. Each node in these maps represents the actors in the network, and the nodes are interconnected by lines representing the relationships between the actors (34, 35). The log likelihood ratio (LLR) algorithm and term frequency-inverse document frequency (TFIDF) are used to determine the orientation of the subject clusters. In addition, along with the network analysis, researchers also obtain statistical values such as modularity Q, mean silhouette and network density (36).

Database

We preferred WoS database for two important reasons: the first is that the WoS database works reliably integrated with the CiteSpace application, used for data analysis (37), and the second is that WoS provides researchers with more complete references and indices (38). WoS allows searching by topic and title, author or publication titles (subject and title, author or publication title, publisher or affiliation).

Search Strategy

Searches were conducted by two different researchers independently from each other from 1991-2019 by writing "leisure constraints" subject in quotation marks in the search box in the WoS Core Collection database. Incorrect results to be obtained are minimized by using quotation marks in the searches carried out in WoS. The titles searched by the Search box are scanned in the abstracts, keywords and full texts of all the studies in WoS. As a result of the scanning, both researchers reached 375 studies (articles, proceedings papers, editorial material, book chapters, review articles, early access, meeting abstracts, and books). The grey literature has been excluded from the research considering some advantages (39) and disadvantages (40) it has and it focused on only articles published in peer-reviewed journals. The searches are presented in detail in the PRISMA flow chart (41) (Fig.1).
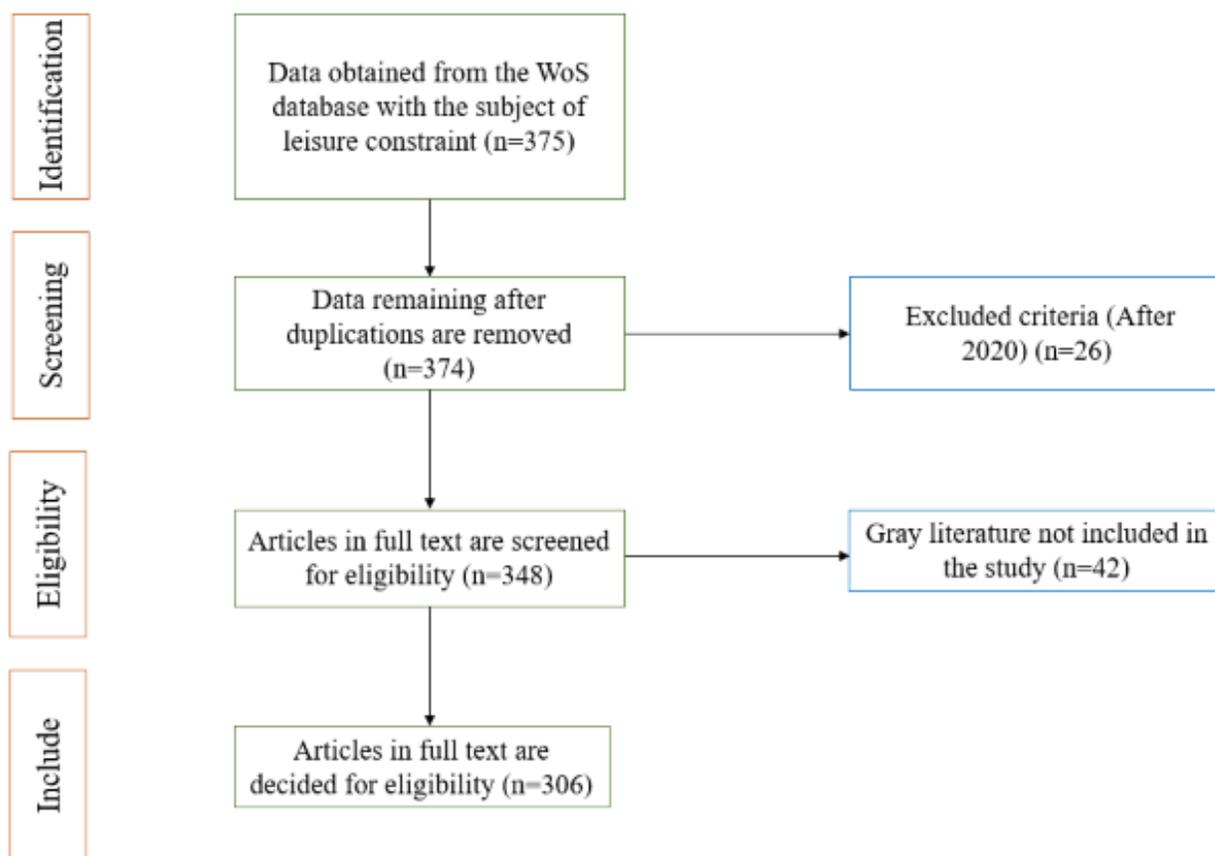

Fig. 1: The selection process of the articles according to the PRISMA technique

Results

Yearly distribution of the studies was reviewed in 5-year periods, but the last period covers a 4-year period since the studies published in 2020 were not included in the research (Table 1).

Table 1: Distribution of articles according to period

Period	Frequency (n)	Percent (%)
1991- 1995	23	7.5
1996- 2000	29	9.4
2001 – 2005	20	6.5
2006 – 2010	43	14.0
2011 – 2015	75	24.5
2016 – 2019	116	37.9
TOTAL	306	100

Country and Institution Collaboration

Table 2 lists the countries and institutions with the largest contribution and their centrality degrees. In the country and institution analysis, the studies, whose authors are from the same country or institution, are counted once. LC-related studies were conducted in 32 countries (Fig. 2).

**Table 2:** Countries/Institution that publish LC papers

Countries	Frequency (n)	Percent (%)	Centrality	Institutions	Frequency (n)	Percent (%)	Centrality
USA	136	44.4	0.69	Texas A&M	23	7.5	0.15
Australia	31	10.1	0.13	Penn State	19	6.2	0.18
Canada	28	9.1	0.08	Griffith Univ.	14	4.5	0.04
Peoples R China	25	8.1	0.00	Clemson Univ.	11	3.5	0.05
South Korea	25	8.1	0.02	Aristotle Univ.	10	3.2	0.05
Taiwan	24	7.8	0.05	Univ. Illinois	10	3.2	0.07
Greece	13	4.2	0.22	Hong Kong Pol.	8	2.6	0.05
England	11	3.5	0.11	Univ. Alberta	8	2.6	0.04

Co-citation network analysis of publications presents all the other sources cited by the 306 LC studies in the WOS database. Table 3 demonstrates the details of 10 most cited studies.

Therefore, the sources that fall into the same cluster appear close to each other on the two-dimensional map (Fig. 3).
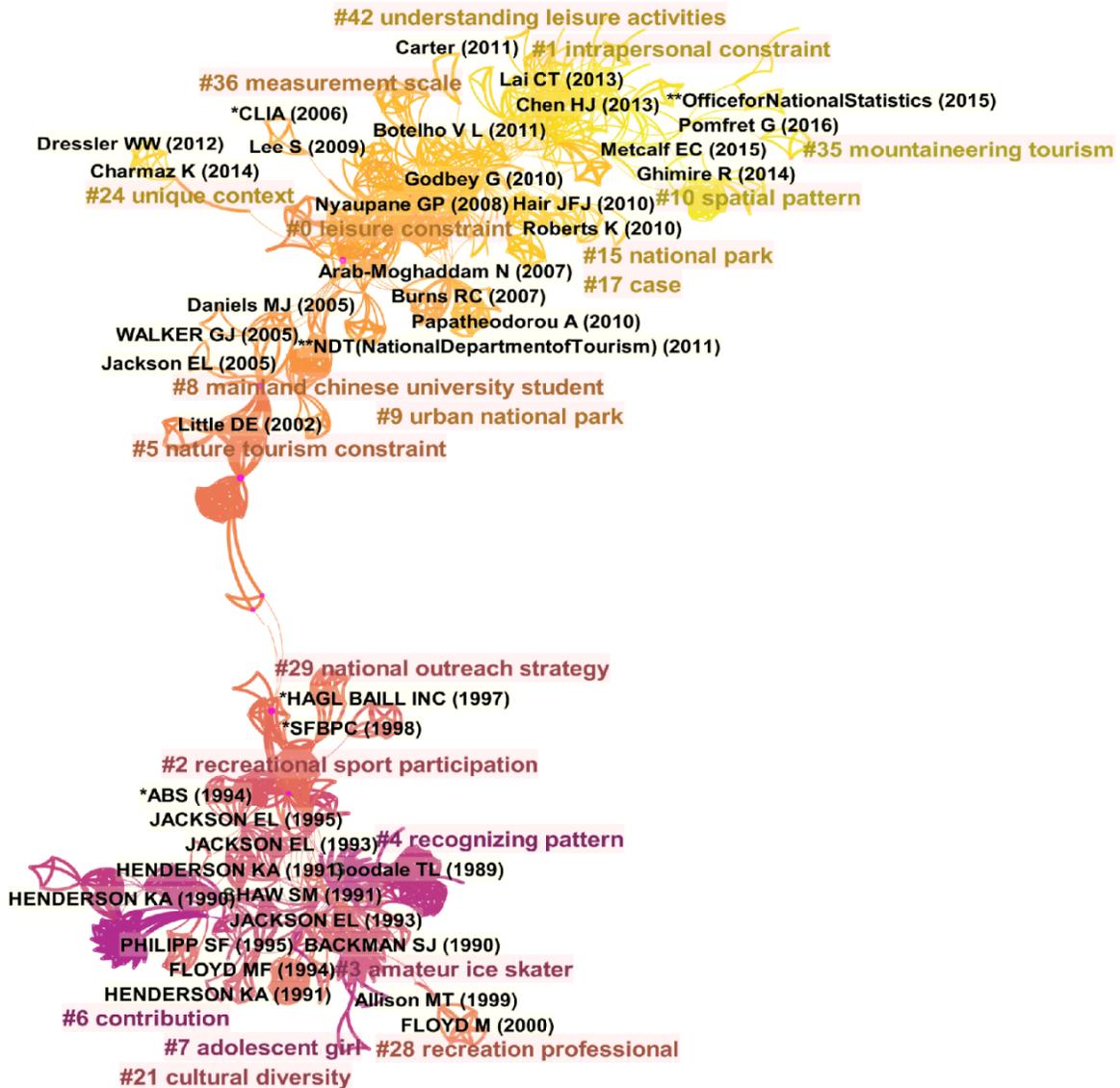
The countries network is divided into 13 clusters and composed of 32 nodes and 42 connections. The network density is 0.08, the modularity value of the network is Q=0.46, weighted mean silhouette value is 0.81. The Institutions network is divided into 241 clusters and is composed of 241 nodes and 231 connections. The network density is 0.00, the modularity value of the network is Q= 0.85, the weighted mean silhouette value is 0.96.

Fig. 2: Country and institution collaborations

Table 3: Top 10 most cited sources

Authors	Title	Frequency (n)	Burst	Centrality	Cluster #
Godbey et al. (42)	Assessing hierarchical leisure constraints theory after two decades. (2010).	18	9.50	0.10	0
Jackson et al. (43)	Negotiation of leisure constraints. (1993).	16	8.69	0.01	3
White (44)	A structural model of leisure constraints negotiation in outdoor recreation. (2008).	16	8.29	0.10	0
Nyaupane and Andereck (45)	Understanding travel constraints: application and extension of a leisure constraints model. (2008)	16	8.29	0.14	0
Jackson (1)	Variations in the desire to begin a leisure activity: Evidence of antecedent constraints? (1990).	14	7.21	0.00	3
Son et al. (46)	Testing alternative leisure constraint negotiation models: An extension of Hubbard and Mannell's study. (2008).	14	6.81	0.09	0
Shaw et al. (47)	Do more constraints mean less leisure? Examining the relationship between constraints and participation. (1991).	14	7.58	0.02	3
Crawford et al. (6)	A hierarchical model of leisure constraints. (1991).	13	6.53	0.03	3
Lyu et al. (48)	The Influence of Extraversion on Leisure Constraints Negotiation Process. (2013).	12	5.54	0.07	1
Chen et al. (49)	The relationship between travel constraints and destination image: A case study of Brunei. (2013).	12	7.07	0.02	1

Fig. 3: Network structure of the publications with common citation

Table 4 presents the clusters of the sources cited by leisure constraints studies, in detail. LLR method was used for designating the topic clus-ters and the homogeneity of the topic clusters was presented.

Table 4: Topic clusters according to co-citation network analysis

Cluster	Size	Mean Silhouette	Label (TFIDF)	Label (LLR) p-value	Average Citation Year
0	24	0.908	Negotiation strategies	Leisure constraint (62.28,1.0E-4)	2008
1	85	0.939	Intrapersonal constraint	Intrapersonal constraint (55.58,1.0E-4)	2013
2	63	0.947	Recreational sport participation	Recreational sport participation (62.05, 1.0E-4)	1996
3	56	0.937	Leisure constraint	leisure constraint (74.25,1.0E-4)	1994
4	38	0.971	Recognizing pattern	Recognizing pattern (25.96,1.0E-4)	1989
5	37	0.987	Nature tourism constraint	Nature tourism constraint (24.96,1.0E-4)	2002
6	31	0.98	The contribution of feminism to an understanding of leisure constraints	Contribution (11.3 0.001)	1989
7	31	0.952	Leisure constraint	Adolescent girl (25.36,1.0E-4)	1991

Co-word Network Analysis

Co-word network analysis is based on the frequency of use of the words in the titles, abstracts and keywords of the publications. Word analysis gives the researchers clues about the trending research topics in the field. While the concepts with the highest frequency values by years are reported, the year 2019 has been discussed in a more comprehensive way in order to reveal the current topic trends in recent years (Table 5).

Table 5: Statistics on most-repeated words/Co-word statistics according to years

Number of citations	Words	Centrality	Year
243	Leisure constraints	0.07	1991
91	Participation	0.26	1992
88	Model	0.10	1993
37	Experience	0.12	1994
13	Adult	0.04	1995
62	Negotiation	0.19	1997
24	Satisfaction	0.06	1998
17	Intention	0.02	1999
28	Physical activity	0.06	2000
4	Greece	0.00	2002
6	Benefit	0.00	2003
19	Perceived constraints	0.05	2004
7	Age	0.02	2005
6	Family	0.02	2006
11	Children	0.04	2007
5	Commitment	0.00	2008
19	Negotiation process	0.05	2009
26	Travel constraint	0.04	2010
6	Chinese outbound tourist	0.05	2011
3	Constraint	0.00	2013
3	People	0.00	2014
4	Structural model	0.00	2015
3	Accessibility	0.00	2016
6	Negotiation	0.00	2017
4	Fear	0.00	2018
3	Self-efficacy	0.00	2019
2	Visitation	0.00	2019
2	Segmentation	0.00	2019
2	Mental Health	0.00	2019

Discussion

The first striking finding of the analysis is that the studies in the field of LC have an ongoing increase since 1991. In addition, the number of citations made to 306 studies included in the scope of this research has increased over the years and reached 9076 citations. Citations to studies have increased in parallel with the increasing number of studies, as well as due to the interest in the subject of LC.

Leisure constraints still attract the attention of researchers today. This is probably due to both the theoretical and applied value of this topic. Leisure constraints can help research to understand decision-making process for leisure participation (50). In this line the hierarchical model of leisure constraints has been combined with recent decision-making models such as the Psychological Continuum Model (51) and the Theory of Planned Behavior (52). On the other hand, its applied value has been well documented, since it has been used for guiding the development of strategies for promoting leisure and recreation participation (50).

The keyword analysis provides some clues regarding topic trends in the LC field. When the subject clusters of the keywords in the LC studies are examined, the "tourism activities", "recreation behavior", "leisure facilities" and "potential green tourism development" are popular topics. When the keyword topic clusters, the distribution of keywords by years and the word citation burst values are examined, there is a serious parallelism between these data; the LC in tourism activities have started to attract attention by researchers especially after the 2010s and they are still among the topics that are highly cited today. The co-word analysis that we have done to detail the evolutionary process of studies in the field of LC shows that studies emerged at the beginning of the 1990s and, in the following years, focused especially on the relations between leisure constraints and participation. This relates to the importance of promoting active leisure participation

in recent years, due to the positive health related outcomes.

With the increasing studies and contributions to the theory over the years, structural models have come to the fore again in 2015, but in the last few years, the interest in the field of LC has shifted to psychological foundations (fear, self-efficacy, mental health etc.) that can affect LC. This situation showed that studies related to intrapersonal factors affecting leisure time participation are a significant gap in the field, there is a current interest in the subject by researchers and it may be among potential topics that can be studied in the near future. As of 2020, the impact of Covid-19 pandemic conditions on people will appear in the LC field as well as in all areas (52). Studies on healthy aging related to the aging of the world population have increased recently. LC studies on technological developments and what modern life brings, will be conducted in the coming period.

When the most cited ones among the studies in the field of LC are examined, especially two studies come to the fore. The study by Crawford et al. (6) titled "A hierarchical model of leisure constraints" is cited 599 times and study by Jackson et al. (43) titled "Negotiation of leisure constraints" is cited 338 times; they contributed the most to the field and they are groundbreaking works in this field. The theoretical models of the hierarchical nature of leisure constraints and the negotiation strategies have provided the theoretical foundation of most of the published studies and have guided researchers in the field of LC research. Strong theoretical papers are the foundation for quality research and for guiding future studies.

The network analysis results indicate that USA is the most important actor in the network with a centrality degree of 0.69. The fact that USA has high centrality in the network analysis can be interpreted as having a strategic importance in connecting the studies conducted in other countries. Penn State University (0.18), on the other hand, is the most important actor in the network of institutions but its role is not as distinct as of

USA. As for the citation burst values and popularity years of the countries and institutions, although researchers from Peoples' Republic of China and South Korea have received more citations in recent years, Canada is the country with the most citations for the longest time. Among the main reason that the USA is an important actor in the network can be the financial capabilities of the countries play an important role (53). Moreover, the USA is the country where recreation movement first emerged (54) and the foundations of institutionalization were laid in the 1900s (55, 56) the high importance given to recreational activities in this country, can be listed.

Limitation

The strength of the study is that the research unit covers a period of approximately 30 years and sheds an important light on the historical process of leisure constraints. The weakness of the study is that the research was conducted only within the WoS database. Due to the search period of the study, the research is limited with pre-covid period. Future studies can be listed as suggestions to deal with covid and post-covid time constraints by using other databases.

Conclusion

While the USA is the main country, in which the majority of leisure constraints studies came from, more countries have started to contribute significantly such as Australia, Canada, China and Korea. The hierarchical model of leisure constraints has been a major development in the field, used by the majority of the studies. The "negotiation proposition" was shown to be the major cluster followed by "intrapersonal constraints" discussed in the context of leisure and sport participation. Some new topics linked with leisure constraints included self-efficacy, segmentation analysis, mental health and fear.

Journalism Ethics considerations

Ethical issues (Including plagiarism, informed consent, misconduct, data fabrication and/or falsification, double publication and/or submission, redundancy, etc.) have been completely observed by the authors.

Conflict of interest

The authors declare that there is no conflict of interests.

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