

A 360° sustainable approach of sport events legacies: A systematic review

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ABSTRACT

Researchers recognise the importance of the legacies and impacts generated by sport events, both in the host city and globally. In turn, there are many actors who participate in them, both directly and indirectly, and who are affected, both positively and negatively, by them. This research aims to identify and compile the existing scientific literature on the legacy, heritage, and related concepts, such as impact and/or leverage, of sport events. To this end, a systematic literature review was carried out, focusing the search on Web of Science, Scopus, Pub Med, and Sport Discus, where 35 articles were finally collected, in which the sum of 44 sport events were studied. It was identified that the most studied types of events were the Olympic Games and World Championships. In relation to the types of legacies, sport stands out, while in the types of impacts, sport and economic impacts stand out. It can be deduced from this research that, although there is a great deal of interest in the subject, there is still a need to go deeper into the concepts to reach a consensus on them, thus being able to achieve more solid results.

Keywords: Sport events; Legacies; Impacts; Leverage; Heritage; Systematic review.

Cite this article as:

Carbonell-García, V., Padial-Ruz, R., Puga-González, E., & Cabello-Manrique, D. (2022). A 360° sustainable approach of sport events legacies: A systematic review. *Journal of Human Sport and Exercise, in press*. <https://doi.org/10.14198/jhse.2023.182.03>

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Submitted for publication February 03, 2022.

Accepted for publication April 18, 2022.

Published *in press* May 30, 2022.

JOURNAL OF HUMAN SPORT & EXERCISE ISSN 1988-5202.

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doi:10.14198/jhse.2023.182.03

INTRODUCTION

The current rapid growth of sport events is making the public increasingly critical of sport organisations, forcing them to manage more efficiently and with a focus on service quality and management (Kim et al., 2019; Thomson et al., 2018). Both mega-events and smaller events, are considered to generate benefits for the host city (Azzali, 2017), although recent studies such as Brittain et al. (2018), Byers et al. (2020) and Koenigstorfer et al. (2019) now question this assertion, questioning the ability of mega sport events to produce sustainable and positive legacies. However, according to Thomson et al. (2018), it is possible to maximise legacy outcomes by undertaking good legacy planning, considering the involvement of key stakeholders and integrated long-term plans.

Legacy has been described by authors such as Brownill et al., (2013) and Preuss, (2018) as a complex concept, which materialises in different ways, depending on the social, economic and political context giving rise to different types of legacy that are interdependent, such as economic (Preuss, 2004), social (Raco, 2004), cultural (Cashman, 1998), environmental (Chappelet, 2008), health (McCartney et al., 2010), sport participation (Veal et al., 2012; Weed et al., 2015), infrastructural (Hiller, 2006; Searle, 2002), political (Grix, 2013), tourism/destination branding (Boukas et al., 2013; Knott et al., 2012), and security (Giulianotti, 2013); and which cannot be planned in isolation.

The International Olympic Committee, (2020), defines Olympic legacy as the outcome of a vision in which it envisages all tangible and intangible long-term benefits, initiated, or accelerated by the organisation of the Olympic Games, sport events for people, cities, territories, and the Olympic Movement. While this definition is specifically created for the Olympic legacy, it only mentions the benefits, leaving out the negative legacies, which also exist. On the other hand, Preuss (2007), in his quest to conceptualise the term sport event legacy, determined that there are five dimensions of legacy: 1) the planned and unplanned structure; 2) the positive and negative structure; 3) the tangible and intangible structure; 4) the duration and time of a modified structure; and finally, 5) the space affected by the modified structure.

Thus, the sport event legacy is defined as the composition of planned and unplanned, positive, and negative, tangible, and intangible structures created for and by a sport event, which outlast the event itself and which are independent of production time and space (Preuss, 2007).

Just as the definition of the term has various interpretations, the types of legacy also vary. Leopkey and Parent (2012) point out 13 types of legacies, both tangible and intangible, which are the ones we will use as a reference to categorise the articles found in this review, 1) cultural legacy; 2) economic legacy; 3) environmental legacy; 4) image legacy; 5) informational/educational legacy; 6) nostalgia legacy; 7) Olympic Movement legacy; 8) political legacy; 9) psychological legacy; 10) social issues legacy; 11) sport legacy; 12) sustainability legacy and 13) urban legacy.

Thomson et al., (2013) argue that there has been an increase in government use of legacy as a justification for intervening in sport events, but the lack of consensus on the issue makes it difficult for event organisers, policy makers and event stakeholders to work towards meaningful legacy outcomes. It is important to recognise the duality of this terminology (positive and negative legacy), as inadequate planning can result in a host city or region experiencing the negative legacies of an event for a long time to come, including financial implications, environmental impacts, and social impacts. Going forward, both positive and negative legacies need to be considered, assessed, and managed across all stakeholders contributing to or affected by an event, to maximise positive legacy outcomes and limit negative ones (Byers et al., 2019).

Just as several authors have focused their studies on the legacy or impact of sport events in the areas of health or social aspects, others have sought answers for the economy or tourism, to name a few. This leads us to think that the legacies of sport events can be approached from different areas, so that by understanding these events in a holistic way, it would be possible to take advantage of the same event in an interdisciplinary way, allowing us to address health, socio-economic, etc. policies in parallel.

Although the central focus of this research is legacies, it is considered relevant to define two other concepts that will also form part of the systematic review: "impacts" and "leverage". Although they are not synonymous, they are concepts that many studies fail to differentiate (Scheu and Preuss, 2017). Thus, Chalip (2004) defines the term leverage as those activities that must be carried out around the event itself, and that seek to maximise its long-term benefits. In turn, O'Brien and Chalip (2007), explain that the event is assessed by the ability to enable leverage and by the quality and outcomes of the leverage applied. Therefore, rather than the traditional "build it and the benefits will come" approach, the purpose of event leverage is to be proactive in planning, to create different types of specific event benefits for the host community, and to take strategic steps to make those events sustainable. Like legacy, leverage also presents different types (Byers et al., 2019) such as social leverage (Kellett et al., 2008), image leverage (Grix, 2012), or non-mega and mid-sized event leverage (Taks et al., 2015; Taks et al., 2014).

The study of leverage has a strategic and tactical focus. These studies seek to identify strategies and tactics that can be implemented before and during an event to generate specific outcomes. The results of leverage studies serve to inform us about which strategies and tactics have been effective, generating learnings that serve to improve future leverage efforts (Chalip, 2006). In other words, "events and the opportunities they present are simply seed capital. What hosts do with that capital is the key to realising long-term sustainable legacies" (O'Brien, 2007, p. 258).

According to Dimanche (1996), short-term benefits are called impacts and long-term benefits are called legacies. The impact is caused by a short-term impulse, i.e., consumption by tourists (Preuss, 2007). While the impacts of mega events are strong, they are only short term, while tourism legacies consider all additional tourism activity in the host city (Li and Blake, 2009). The impact, like the legacy, can be positive or negative (Preuss and Solberg, 2006).

Table 1 summarises the characteristics defined in relation to the three concepts to be used.

Table 1. Comparison of legacy, impact, and leverage characteristics.

Characteristics	Legacy	Impact	Leverage
Visible results	Long term	Short term	Short or long term
Must be	Planned or Unplanned		Planned and Proactive
Objective		Outcomes	Improvement of strategies and tactics (search for the most effective ones)
Outcome can be	Positive or Negative Tangible or Intangible	Positive or Negative Tangible or Intangible	Positive

Note. Adapted from: Chalip 2004; Chalip 2006; Preuss 2007; Preuss and Solberg 2006; O'Brien and Chalip 2007.

Based on the problems shown and the research questions, a systematic review was carried out covering the period 2007-2020 with the aim of *analysing, identifying, and compiling the existing scientific literature on the*

legacy and related concepts, such as impact and/or leverage, of sport events and thus determine a proposal for improvement and further research. It is intended to give an overview of the current state of the art.

MATERIALS AND METHODS

The selection process was developed based on the adaptation to Spanish of the items for publishing systematic reviews and meta-analyses of the PRISMA (Preferred Reporting Items for Systematic reviews and Meta-Analyses) statement (Sotos-Prieto et al., 2014), with the aim of establishing a correct state of the art and evolution of scientific production.

Search procedure and strategy

The bibliographic search was carried out from May to July 2020, using the Web of Science (WOS), Scopus, Pub Med, and Sport Discus databases as the main search engines. The keywords used for the search were divided into two families. Those of the independent variable: "sport event", "sports events", "sport competition", "Olympic Games" and "Anniversaries and Special Events", the latter being the only term added to the Medical Subject Headings (MeSH) list of terms. These keywords were combined using the Boolean term "OR". The dependent variable family consisted of the combination of the terms "legacy", "legacies", "impact", "impacts", "heritage" and "leverage", also using the Boolean term "OR". The results of both families were joined with the Boolean term "AND". The final search equation was, (((("sports events") OR ("sport event")) OR ("Anniversaries and Special Events")) OR ("Sport Competition")) OR ("Olympic games")) AND (((legac*) OR (Impact\$)) OR (Heritage)) OR (Leverage)).

Once this process was completed, three filters were placed in each of the databases: the documents had to be original scientific articles, they had to be open access, and only articles written in English, Portuguese and Spanish were accepted, without limiting the time range of the publication. Therefore, book publications, systematic reviews, meta-analyses, and others were excluded from the selection. Thus, a total population of 1349 scientific publications were established. Once we had the articles that met each of the characteristics, we exported them all to the EndNote bibliographic manager (Web version), where we proceeded to eliminate duplicate files (n=225). Once this process was completed, a manual filter was carried out by title and abstract, reducing the sample to a total of 114 articles, which went on to the full reading phase.

To determine the sample of articles that comprise the base body of this study, the following inclusion criteria were followed, based on Sotos-Prietos et al. (2014) and Aguilera-Morales et al. (2018):

- 1) Original scientific studies.
- 2) Written in Spanish, English and Portuguese.
- 3) Scientific studies whose dependent variable had to be legacy, impact, and/or leverage.
- 4) Scientific studies whose independent variable had to be sport events.
- 5) Methodological aspects, such as the sample selected, where the data were extracted from, had to be clear.

All articles that did not meet these requirements were eliminated from the study. Finally, the selected articles were organised, and an identification number was applied to them. Based on the above, the population of this study corresponds to 1349 scientific articles. After considering and applying the inclusion and exclusion criteria, the sample of this review corresponds to a total of 35 scientific articles, which were downloaded and imported into the bibliographic manager Mendeley Desktop (version 1.19.4). Microsoft Excel was used to analyse the data, with which tables and graphs were created.

The flow chart of the phases followed to select the articles to be analysed is presented below. (Figure 1).

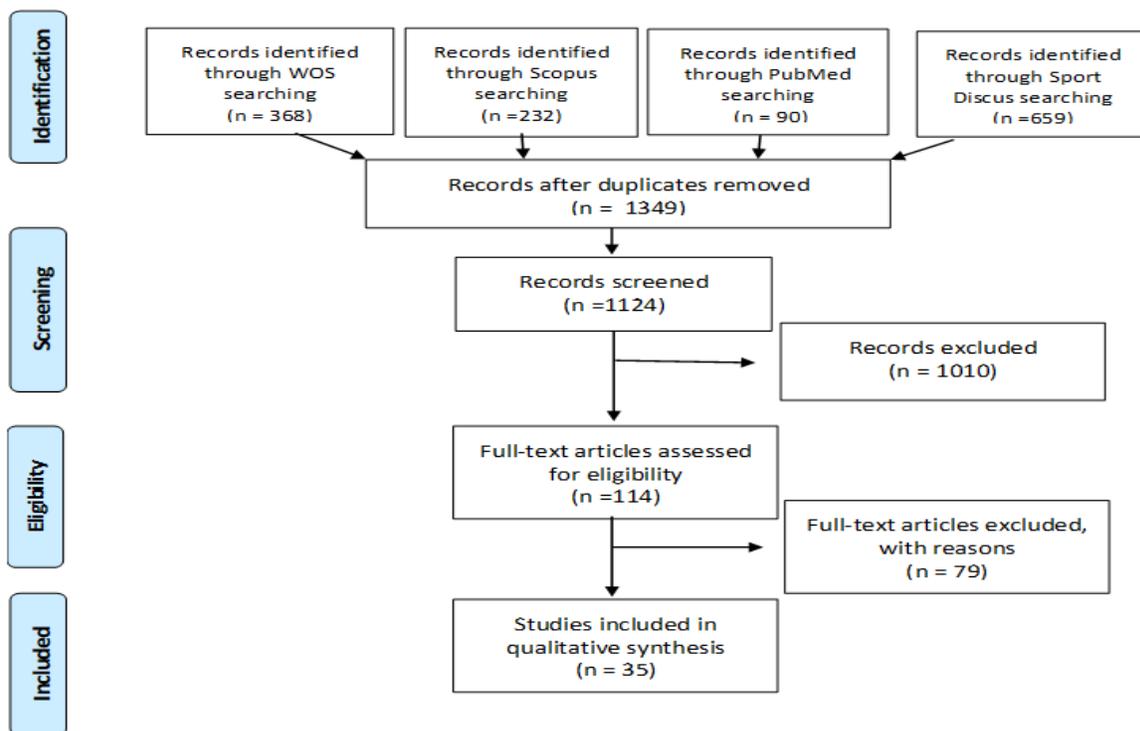


Figure 1. Flowchart of the study selection process.

Data extraction procedure and article description

Data from the studies were extracted based on the units of analysis and using the following coding: (1) Author/s; (2) Year of publication; (3) Country; (4) Language; (5) Type of sport event; (6) Actors; (7) Type of Legacy; (8) Type of Impact; (9) Type of Leverage.

This study was coded by two of the authors, in order to verify the reliability of the coding and the degree of agreement between the researchers for the extraction and selection of the data (González-Valero et al., 2019). The degree of agreement in the classification of the articles was 92%, which was obtained by dividing the number of coincidences by the total number of categories defined for each study and multiplying by 100. Table 2 shows the main characteristics of the articles that make up the base body of the systematic review.

Table 2. Research included in the systematic review.

N°	Author	Year	Language	Country	Sport Event
1	O'Brien	2007	English	Australia	"Nossa" Surfing Festival (2004)
2	Doherty	2009	English	Canada	Canada Summer Games (London, Ontario 2001)
3	Frawley & Cush	2011	English	Australia	Rugby World Cup (2003)
4	Añó et al.	2012	Spanish	Spain	Formula 1 European Grand Prix (Valencia 2008, 2009, 2010)
5	Bob & Naidoo	2012	English	South Africa	Football World Cup (South Africa 2010)
6	Karadakis & Kaplanidou	2012	English	Canada	Olympic Games (Vancouver 2010)

7	Knott et al.	2012	English	South Africa	FIFA World Cup (South Africa 2010)
8	Feng & Hong	2013	English	China	Olympic Games (Beijing 2008)
9	Sousa et al.	2013	English	Brazil	Olympic Games (Rio de Janeiro 2016)
10	Craig & Bauman	2014	English	Canada	Olympic Winter Games (Vancouver 2010)
11	Liu, Broom & Wilson	2014	English	China	Olympic Games (Beijing 2008)
12	Parra et al.	2014	Spanish	Spain	Tennis Open 500 (Valencia)
13	Carter & Lorenc	2015	English	England	Olympic Games (London 2012)
14	Frawley & Van den Hoven	2015	English	Australia	Football World Cup (2006)
15	Hodgetts & Duncan	2015	English	Croatia	Australian Surf Life Saving Surfing Championship
16	Pappous & Hayday	2015	English	England	Olympic Games (London 2012)
17	Ramchandani et al.	2015	English	England	Women's Hockey Champions Trophy 2010; London 2010 Triathlon; Women's Rugby World Cup 2010; Athletics London Grand Prix 2011; Badminton World Championships 2011; BMX Supercross World Cup 2011; Rowing Junior World Championships 2011; Trampoline and Tumbling World Championships 2011; Track Cycling World Cup Classics 2012.
18	Thompson et al.	2015	English	London	Olympic Games (London 2012)
19	Tichaawa et al.	2015	English	South Africa	2010 FIFA World Cup (South Africa)
20	Barajas et al.	2016	English	Spain	Rally Ourense (ed. 2009, 2010 and 2011). Recognised as a National competition.
21	Chen & Henry	2016	English	London	Olympic Games (London 2012)
22	Coates & Vickerman	2016	English	England	Paralympic Games (London 2012)
23	Kohe et al.	2016	English	England	Olympic Games (London 2012)
24	Azzali	2017	English	England	Olympic Games (London 2012)
25	Butel y Schor	2017	Portuguese	Colombia & Brazil	FIFA World Cup (Brazil 2014)
26	Jerkunica et al.	2017	English	Canada	European senior laser championships
27	Aizawa et al.	2018	English	Japan	Olympic Games (Tokyo 1964)
28	Bell & Daniels	2018	English	England	BMX World Super Cross (2016)
29	Parra et al.	2018	English	Chile	America's Cup of Football (Chile 2015)
30	Salgado et al.	2018	English	Spain	Swimming Championships (2017)
31	Dolan et al.	2019	English	England	Olympic Games (London 2012)
32	Kim et al.	2019	English	South Korea	Winter Olympic Games (Pyeongchang, 2018)
33	Kokolakakis et al.	2019	English	England	Olympic and Paralympic Games (London 2012)
34	Malchrowicz-Mosko et al.	2019	English	Poland	Poznan Half Marathon
35	Cleland et al.	2020	English	Scotland	Commonwealth Games (Glasgow 2014)

RESULTS

A total of 35 articles makes up the analysis sample for the systematic review, in which $n=44$ sport events were studied; and $n=15$ types of legacies and $n=11$ types of impacts were analysed; a leverage study was conducted; and a legacy effects study was carried out.

In relation to years of publication

Although neither in the filters nor in the inclusion criteria was the search narrowed down by publication date, the articles that finally remained were in the range of 2007 to 2020. It was observed that there are no publications prior to 2007, and from 2012 onwards, when all the years began to be published, with 2015 being the year with the highest number of publications ($n=7$) (Figure 2).

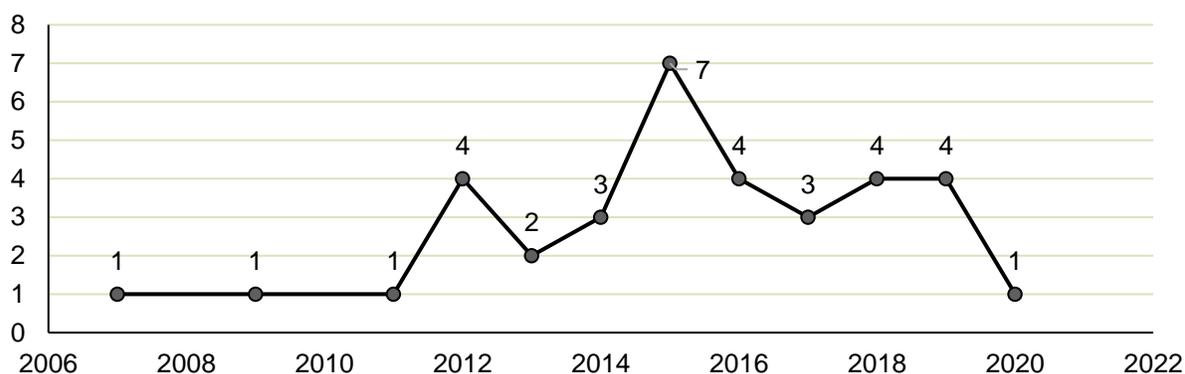


Figure 2. Years of publications included.

In relation to the journals

The articles in the sample ($n=35$) were published in 25 different journals, of which $n=17$ was published in 12 journals in the Journal Citation Report (JCR) ranking and $n=10$ articles in 8 journals in the Scimago Journal and Country Report (SJR) ranking.

It can be deduced from this that 80% of the articles are of high quality as they are indexed in high impact journals for the scientific community.

In relation to the countries

The events studied were mainly focused on the United Kingdom (30.6%), followed by Canada and Spain (11.1%), Australia, Chile, and South Africa (8.3%), and Brazil (5.5%), the remaining six countries (Poland, Japan, Scotland, Croatia, South Korea, and Colombia) were only studied on one occasion.

In relation to the population

In relation to the study population within the events (Figure 3) for the most part, the authors analysed residents (23.2%). Secondly, they focused on participants and/or athletes (16.1%). To a lesser extent managers, municipal officials and staff related to the organisation of the event (7.1%); tourists, non-host residents (from other cities within the country), children and adolescents, spectators and/or staff (position other than event organiser) (5.4%); sponsors, volunteers, coaches, clubs, and organisations within the club (3.6%); entrepreneurs, physical education teachers, youth, adults, media, and tourism executives (1.8%).

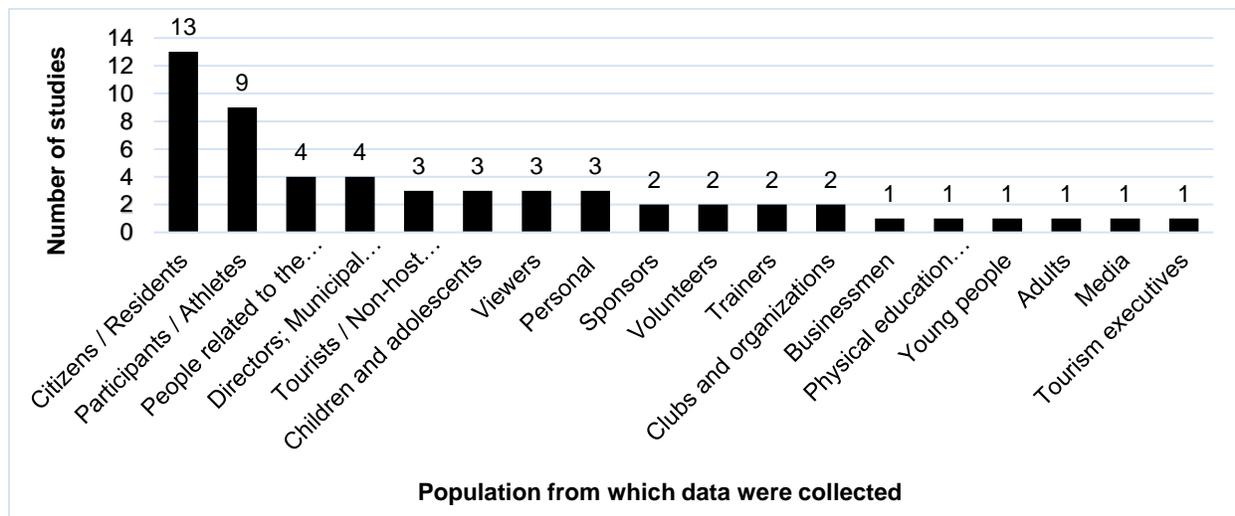


Figure 3. Target population of the studies.

In relation to the types of sport events

The analysis shows that events of greater complexity and impact were those that generated the greatest interest in the scientific community. Thus, research focused mainly on mega sport events, more precisely, on the Olympic Games in 38.6% of cases. World championships (excluding football), with 22.7%, in third place, world football championships with 11.4%, in fourth place: regional championships, international tournaments or grand prix and national championships with a frequency of 6.8%, in fifth place, European championships (4.5%) and in last place with only one study, popular races (Table 3).

Table 3. Sport events on which the research focused.

Type of Event	F	Sport Event
Olympic Games	17	Beijing 2008 (items no. 8 and 11); Winter Pyeongchang 2018 (32); Winter Vancouver 2010 (6 and 10); London 2012 (13, 16, 18, 21, 23*-24, 31 and 33); Rio de Janeiro 2016 (9); Tokyo 1964 (27); London 2012 Paralympics (22-23*)
Football World Cup	5	South Africa 2010 (5, 7 and 19); Brazil 2014 (25); Germany 2006 (14)
World Championships	10	Rugby 2003 (3); Women's Rugby 2010 (17*); Badminton 2011 (17*); Trampoline and Tumbling 2011 (17*); Junior Rowing 2011 (17*); Track Cycling 2012 (17*); BMX Supercross 2011 (17*); Women's Hockey Champions Trophy 2010 (17*); London Triathlon 2010 (17*); BMX Supercross 2016(28)
European Championships	2	Formula 1 Valencia 2008, 2009, 2010 editions (4); Senior Laser 2014 (26)
Regional	3	America's Cup Football Chile (2015) (29); Commonwealth Games (Glasgow 2014) (35); Noosa Surfing Festival (2004) (1).
Tournaments or Grand Prix (International)	3	Athletics Grand Prix London 2011 (17*); Tennis Open 500 Valencia (12); Rally Ourense (ed. 2009, 2010 and 2011) (20).
National Championships	3	Australian Surf Life Saving Surfing Championships (15); Spanish Absolute Swimming Championships Spring Open (2017) (30); Canada Summer Games (London, Ontario 2001) (2)
Popular Races	1	Poznan Half Marathon (34)

Note. F= Frequency with which it has been studied. *Same research that studied the London 2012 Olympic and Paralympic Games.

**Same research that studied nine (non-mega) sport events in England.

Regarding the types of legacies

Regarding the results on the types of legacies, a total of 15 types of legacies were studied, where clearly the legacy that has had the most interest and repercussion was the sports legacy, studied in 20 different articles (51.3%), where nine of them were analysed in the same article. The remaining types of legacies studied are not analysed in many events, covering only one or two (2.6% - 5.1%), respectively. In reference to legacy effects, only one study (n=1) refers to that terminology (Table 4).

Table 4. Legacies and events.

Legacies	Sport event studied
Sport	Rugby World Cup 2003 (paper n. 3)
	Olympic Games, Rio de Janeiro 2016 (9)
	Olympic Games, London 2012 (13); (16); (23) **; (33)
	Football World Cup, 2006 (14)
	Australian Life Saving Surfing Championships (15)
	Women's Hockey Champions Trophy 2010 (17) **;
	London Triathlon 2010 (17) **
	Women's Rugby World Cup 2010 (17) **
	London Grand Prix Athletics 2011 (17) **
	Badminton World Championships 2011 (17) **
	BMX Supercross World Cup 2011 (17) **
	World Rowing Junior Championships 2011 (17) **
	Trampoline and Tumbling World Championships 2011 (17)**
	Cycling Track World Cup Classics 2012 (17) **
Paralympic Games, London 2012 (22) * (23) **	
Olympic Games, Tokyo 1964 (27)	
Commonwealth Games, Glasgow 2014 (35)	
Volunteer	Summer Games Canada 2001 (London, Ontario) (2)
	Winter Olympic Games, Pyeongchang, 2018 (32) *
Economic	Economic Olympic Games, Vancouver 2010 (6)*
	Football World Cup, South Africa 2010 (19) *
Tourist	Olympic Games, Vancouver 2010 (6) *
	Football World Cup, South Africa 2010 (7) *
Social	Olympics, London 2012 (18) *
	Football World Cup, South Africa 2010 (19) *
Olympics	Olympic Games, Beijing 2008 (11)
	Winter Olympic Games, Pyeongchang, 2018 (32)*
Environmental	Olympic Games, Vancouver 2010 (6)*
Psychological	Olympic Games, Vancouver 2010 (6) *
Knowledge	Olympic Games, Vancouver 2010 (6) *
National Branding	Football World Cup, South Africa 2010 (7) *
Legacies in general	Olympic Games, London 2012 (24)
Sociocultural	Olympic Games, Vancouver 2010 (6) *
Health	Olympic Games, London 2012 (18) *
Paralympic	Paralympic Games, London 2012 (22) *
Soft	BMX World Super Cross 2016 (28)
Inherited effects	Olympic Games, London 2012 (31)

Note. *Different types of legacies within the selected sport event were studied in the same article. **In a single article the same type of legacy was studied in different sport events. Small numbers in bold and in brackets refer to the authors studying that event indicated in Table 3.

In relation to impacts and leverage

The n=11 types of impacts referred to by the authors in their studies and the sport event in which they evaluated them were visualised. In these results it is possible to appreciate how the study of sport impact predominates, being analysed in nine events (n=9; 31%), followed by economic impacts in six (n=6; 20.7%), infrastructure in three (n=3; 10.4%) and the rest in one or two (n=1; 3.5%; n=2; 6.9%), respectively. In only n=1 study, leverage was analysed (Table 5).

Table 5. Impacts and events.

Impacts/Leverages	Sport event studied
Sport	Rugby World Cup (2003) (article no. 3)
	Formula 1 European Championship (Valencia) (4) *
	Olympic Games (Beijing 2008) (8)
	Olympic Winter Games (10)
	Football World Cup (2006) (14)
	Australian Surf Life Saving Championship (15)
	Olympic Games (London 2012) (21)
	Poznan Half Marathon (34)
	Tennis Open 500 (Valencia) (12) *
Economic	Swimming Championship (2017) (30)
	America's Cup Football (Chile 2015) (29)
	European Senior Laser Championship (26)
	Rally Ourense (ed. 2009, 2010 y 2011) (20)
	Tennis Open 500 (Valencia) (12)
Urban/Infrastructure	European Formula 1 Grand Prix (Valencia) (4) *
	Formula 1 European Championship (Valencia) (4) *
	Tennis Open 500 (Valencia) (12) *
Social	FIFA World Cup (Brazil 2014) (25) *
	Formula One European Championship (Valencia) (4) *
Socio-Cultural	America Football Cup (Chile 2015) (29) *
	America Football Cup (Chile 2015) (29) *
Environmental	Tennis Open 500 (Valencia) (12) *
	Football World Cup (South Africa 2010) (5) *
Political and Administrative	America Football Cup (Chile 2015) (29) *
	America Football Cup (Chile 2015) (29) *
Image and Promotion	America Football Cup (Chile 2015) (29) *
Transport	Tennis Open 500 (Valencia) (12) *
Hotelier	FIFA World Cup (Brazil 2014) (25) *
Intangible (Well-being)	FIFA World Cup (Brazil 2014) (25) *
Leverage	Olympic Games (London 2012) (31)
	"Nossa" Surfing Festival (2004) (1)

Note. *In the same article, different types of impacts within the selected sport event were studied. Small numbers in bold and in brackets refer to the authors studying that event indicated in Table 3.

Analysis of the relationship of sport event types with legacy or impact type

Considering the different types of legacies and impacts in combination with the types of sport events on which the researchers focused their studies, a total of 67 analyses were found. This is because, in several of the articles, the study covered more than one type of legacy and/or impact or more than one sport event. It is observed that of all the analyses that focused on the study of legacy in sport events, n=20 (51.3%) focused on the Olympic Games, n=5 (38.5%) on world championships, n=2 (5.1%) on national championships and n=1 (2.6%) on regional tournaments or major events and championships. Meanwhile, the analyses that

focused on the study of impact, a total of n=6 (21.4%) focused on world championships and tournaments or grand prix, n=5 (17.9%) on European and regional championships, n=4 (14.3%) on the Olympic Games and n=1(3.6%) on national championships and popular races. The remaining values refer to the percentage of times a type of legacy/impact is mentioned within a type of event. For example: 35% of all analyses that focus on the Olympic Games look at sport legacy, 10% at Olympic legacy and the remaining 5% each (Table 6).

A major difference observed between the study of legacies and impacts was that the legacy research only focused on n=5 of the fourteen event types classified by Añó (2003), while the impact types cover a total of n=7 event types.

Table 6. Legacies/Impacts studied based on event type.

Type of Sport Event	Type of Legacy	Total (%) *	Total (%) +	Type of Impacts	Total (%) **	Total (%) ++
Olympic Games	Voluntary	51.3	5.0	Sport	14.3	75.0
	Economic		5.0			
	Tourist		5.0			
	Environmental		5.0			
	Psychological		5.0			
	Knowledge		5.0			
	Olympic		10.0			
	Sport		35.0	Intangible (Welfare)		25.0
	Legacy in general		5.0			
	Social		5.0			
	Sociocultural		5.0			
	Health		5.0			
	Paralympic		5.0			
Total		100.0			100.0	
World Championships	Economic	38.5	6.7	Sport	21.4	33.3
	Tourist		6.7	Urban/ Infrastructure		16.7
	National Brand		6.7	Environmental		16.7
	Sport		66.7	Transport		16.7
	Social		6.7	Hotelier		16.7
	Soft		6.7			
Total		100.0			100.0	
European Championships	/	/	/	Sport	17.9	20.0
				Economic		40.0
				Urban/ Infrastructure		20.0
				Social		20.0
Total		/			100.0	
Regionals	Sport	2.6	100.0	Economic	17.9	20.0
				Social		20.0
				Sociocultural		20.0
				Environmental		20.0
				Political and Administrative		20.0
Total		100.0			100.0	
Tournaments or Grand Prix	Sport	2.6	100.0	Sport	21.4	16.7
				Economic		33.3
				Urban/ Infrastructure		16.7
				Sociocultural		16.7

				Image and promotion		16.7
Total			100.0			100.0
National Championships	Sport	5.1	50.0	Sport	3.6	100.0
	Voluntary		50.0			
Total			100.0			100.0
Popular Races	/		/	Sport	3.6	100.0
Total		100	/		100	100.0

Note. *Total percentage of legacy studies in relation to the total number of types of events studied. ** Total percentage of impact studies in relation to the total number of event types studied. ++ On the number of articles that studied the particular sport event, the percentage of how many focused on each type of legacy was calculated. ++ On the number of articles that studied the particular sport event, the percentage of how many focused on each type of impact was calculated.

DISCUSSION

In relation to the sport events selected by the authors as a focus for their research, it could be observed that they have been very varied, covering different types of events and sports, which leads to insufficient knowledge of the same topic. The event that channelled the most studies was the London 2012 Olympic Games (Azzali, 2017; Carter and Lorenc, 2015; Chen and Henry, 2016; Dolan et al., 2019; Kohe and Bowen-Jones, 2016; Kokolakis, et al., 2019; Pappous and Hayday, 2015; and Thompson et al., 2015).

Regarding scientific production, the increase in publications since 2012 may be because in 2003 the International Olympic Committee included for the first time in its "*Olympic Charter*" rule 2. 15, which states that the promotion of the positive legacy of the Olympic Games in the host city and country must be considered (IOC, 2020), so the London 2012 Olympic Games were the first sport events (Olympic Games) to present a mandatory legacy planning in their bid, and this led to an interest in studying the possible legacies provided by that event, which is also related to England being the focus of study.

In terms of the study population, the main focus of the articles included in the sample has been on the resident citizens of the host cities. This may have been because studying residents' perceptions of the impacts of mega-events can reveal the true magnitude of the legacy of any event, so this population has been given great importance by event organisers (Liu et al., 2014). In turn, Parra et al. (2014) consider that smaller events provide the opportunity for residents to participate, which can generate a better quality of life, when a high level of satisfaction is achieved in the population, in relation to the impacts and/or legacies provided by that sport event. Several authors state that if residents perceive that the benefits outweigh the costs, they will tend to have a positive attitude towards the event, but if the costs outweigh the benefits, it can lead to a withdrawal of support and a negative attitude towards the event (Karadakis and Kaplanidou, 2012; Parra et al., 2018; Tichaawa et al., 2015). Thus, Dolan et al. (2019), consider that a fundamental question to be asked before any decision is made, in relation to taxpayers' money, is whether the benefits justify the costs, with benefits being considered as, for example, the resident's well-being. Finally, Añó et al. (2012) consider that the study of residents' perceptions is an important tool, as it can assess social impacts. In turn, they mention that these analyses are being requested from event organisers in their bids, as the support and participation of residents is relevant, because by hosting an event in the city, residents will face increases in their taxes to make the event possible (Gursoy and Kendall, 2006).

Regarding the data obtained on event types, Bob and Naidoo (2012) find that mega-events have a media focus and high audience levels. In turn, the Olympic Games have the highest profile globally, as a sport event that attracts a multitude of media and public attention (Pappous and Hayday, 2015). In this review, it was observed that, of the 14 types of sport event proposed by Añó (2003), only seven of them have, to a greater

or lesser extent, been considered for study, while seven others have not received scientific attention. Also, there is an imbalance in the frequency with which they were studied, with the Olympic Games and World Cups in general receiving the most interest. This could be because in many cases it is believed that mega events are the ones that provide great effects on the host city (Azzali, 2017; Doherty, 2009; Parra et al., 2014), something that is not entirely true, as it has been shown that non-mega sport events offer similar benefits and are likely to be successful (Gratton, Dobson, & Shibli, 2000). In this review we found very diverse articles, where a total of 32 different events were studied. This makes it difficult to analyse the results, as they cannot be compared with each other due to their very different characteristics, such as the size of the event, year (time, historical context), type of sport, popularity, level of complexity, etc., as well as the objectives and methodological aspects of each research. It is worth noting that, in relation to global events, the 2010 World Cup in South Africa was considered a unique event on the continent, as it was the first mega-event on African soil (Bob and Naidoo, 2012; Knott et al., 2012; Tichaawa et al., 2015).

In relation to legacy types, the data reflect that there is a lack of criteria for their classification. While there are some specific terminologies, authors such as Cashman (2005), Chappelet (2008) and Leopkey and Parent (2012), lump these terminologies into the same category. One category that was not considered by any of the three authors when defining types of legacies, and which attracted attention, was volunteer-related legacies, as volunteer roles are critical to the success of an event (Doherty, 2009; Kim et al., 2019). With good management and strategic planning, forces can be joined together for a common goal, as was the case for the Glasgow Commonwealth Games, studied by Cleland et al. (2020), where one of the main drivers for organising the event was that the health and wellbeing of residents was among the lowest in Europe. Therefore, by gaining an understanding of how legacies are assessed, event organisers, the host nation, or the International Olympic Committee, can marshal resources to improve the legacy programmes that residents receive as a legacy (Karadakis and Kaplanidou, 2012).

Specifically, referring to the types of legacies chosen by the authors in our sample, it was observed that the analysis of sport legacy predominated. Aizawa et al. (2018), understand that mega sport events generate direct and indirect effects on sport participation, where the European Commission (2016), recognises "*the undeniable and important health benefits of sport and physical activity and their crucial role in the fight against obesity and other non-communicable diseases*" (p. 13). On the other hand, surprisingly little academic attention has been given to other types of legacies, such as economic, tourism or social, to name but a few.

In relation to impacts, specifically the term impact on sport events, and the types that exist to be able to evaluate each area of the event, there is some confusion. It is therefore urgent to define this concept in context, so that researchers can unify criteria, allowing them to compare their analyses. This review mainly found research that focused on sport impacts (Chen and Henry, 2016; Frawley and Van den Hoven, 2015; Malchrowicz-Mosko, et al., 2019), secondly, on economic impacts (Jerkunica et al., 2017; Parra et al., 2018; Salgado et al., 2018) and, thirdly, on urban/infrastructure impacts (Añó et al., 2012; Butel-Ribeiro and Schor, 2017; Parra et al., 2018). Two of the three mentioned (sport and urban/infrastructure) are not found in Preuss and Solberg's (2006) classification.

Frawley and Van de Hoven (2015), consider that, due to the large amount of public funds allocated by some nations for elite sport, it is important for researchers to conduct studies on the impact that these international sport events have in stimulating sport participation. In this sense, Añó et al. (2012), refers to the growth of Spain in the last two decades in terms of the organisation of sport events, mainly because of the impacts that are related to these events, which can be economic, tourism, infrastructure, image, among others. This has led to various cities and/or countries vying for the event's candidacy.

In relation to the leverage of sport events, only one article was included, that of O'Brien (2007), which showed that small-scale events have potential for leverage and that, to make the most of this, stakeholders need to approach their events in a much more strategic sense than is generally done, a claim that is supported by Chalip (2006).

In terms of the relationship of sport event type and legacy type, in terms of the relationship between the Olympic Games and sport legacy (Sport legacies in the Olympic Games), some countries have used as strategies to promote sport participation, hosting a sport event, justifying these acts by the belief that after the event there is a legacy of participation, which would help to reverse the situation of stagnating sport participation rates (Kokolakakis et al., 2019). The idea that a mega-event, such as the Olympic Games, can bring about changes in people's attitudes towards sport and/or physical activity has become recurrent since the International Olympic Committee incorporated rule 2.15 into its Olympic charter (Aizawa, et al., 2018; Kohe and Bowen-Jones, 2016; Kokolakakis et al., 2019). Frawley and Cush (2011), consider that based on the significant investment of taxpayers' money taken to host the event, it is substantial to conduct critical research into the effectiveness of the event in increasing levels of physical activity and sport (Pappous and Hayday, 2015).

It could be seen that, of the seven articles included in this crossover, five referred to London 2012, where the Organising Committee's aim was to inspire a generation through sport (Pappous and Hayday, 2015), finding mixed results. Studies by Aizawa et al. (2018), Coates and Vickerman (2016), Kokolakakis et al. (2019) and Pappous and Hayday (2015), found an increase in the legacy of participation, while studies by Carter and Lorenc (2015) and Kohe and Bowen-Jones (2016) found inconclusive conclusions that the legacy of participation was not a significant contributor to the legacy of participation.

In relation to the Olympic Games and Olympic legacies, for Liu et al. (2014), sport events can raise a city's profile and are often linked to a desire to reinvent itself and provide urban regeneration and tourism development, as well as emotional capital including pride and a sense of empowerment. Respondents perceived a wide range of legacies for the 2008 Olympic Games, being in order of most significant at least: Identity and culture; Psychic income and social capital; Networks and cooperation; Infrastructure and skills development; Sport and health; Tourism and economy; and Environment. The authors suggested that, in the long run, intangible benefits such as emotional and psychic income would stand out and even outweigh economic and infrastructure development (Liu et al., 2014). Kim et al. (2019), on the other hand, concluded under the volunteers' perception, broadly speaking, that the Olympic legacies contributed to the community, the country, and the world.

In relation to the sport legacy of world championships, event promoters often claim that hosting major sport events will inspire people to choose sport and increase participation levels in the long term. Reducing physical inactivity is a desired outcome for policy makers around the world, given its negative effect on health and life expectancy (Lee et al., 2012). In this regard, research by Frawley and Cush (2011) and Frawley Van den Hoven (2015) found positive results, with an increase in sport participation. Ramchandani et al (2015) claim that (non-mega) sport events have the potential to contribute to an increase in the participation of the people who attend them, but more still needs to be done for this effect to occur in sedentary people.

In relation to the crossover of event type and impact type variables, specifically sport impacts at the Olympic Games, the research concluded that there is no significant relationship between the frequency of sport participation and the Beijing Olympic Games. The authors claim that the main problems for which results were not achieved are restrictions in policy support, shortage of sports facilities, among others (Craig and

Bauman, 2014; Feng and Hong, 2013). However, the study by Chen and Henry (2016) found that, thanks to the impact of the London Games, there was an increased awareness of the benefits of exercise, as well as motivation, with less impact on inactive people.

On sport impacts of world championships, data collected from interviews in Frawley and Cush's (2011) study suggest that hosting the Rugby World Cup 2003 significantly increased exposure in Australia. And it highlighted the importance of continued investment in rugby development programmes. A study of the impact of the 2006 World Cup in Germany concluded with positive impacts of sport participation (Frawley and Van den Hoven, 2015).

In relation to the economic impacts of world championships, Añó et al. (2012) and Jerkunica et al. (2017), who studied the economic impacts of European championships, found positive impacts in terms of the economic, image and tourism benefits generated by sport events. Participants of a sport event on average spend more than tourists and that these participants or guests are interested in the history and culture of the place, which leads them to transfer these emotions to friends and family, generating interest in getting to know the destination (Jerkunica et al., 2017). On the other hand, Añó et al. (2012) concluded that the aspects that citizens rated the worst in their study were job creation, public investment, noise, traffic, public transport, safety, the use of infrastructures, the increase in sports practice and sports facilities.

Finally, on the economic impacts of tournaments or major events, authors such as Barajas, et al. (2016), found that the Rally has a high return on public investment, where, on average, for every euro spent by public authorities, the city experiences an increase of 10 in spending. However, Parra et al. (2014), found that citizens' perception of a tennis event in Valencia, a high number of residents rated negatively all the studied aspects of the event, possibly due to the low support that some groups in the city give to the holding of large events, as well as the socio-economic context in which the city was on that date.

Limitations and implications

The 360° view of sport events provided in this study allows us to understand the various actors, the types of legacies, the events and types of sport events and their relationship with different areas of the country, such as politics, tourism, economy, health, host and non-host citizens, infrastructure, etc. This allows to understand the event and the different types of legacies as a whole and thus to identify the aspects from which I can benefit, being able to plan the legacies in an efficient and integral way, so that with the same event positive results can be obtained in more than one area, as well as to avoid negative legacies, which allows a sustainable approach to the events. The main limitations of the study are the fact that the search was channelled into only four search engines, leaving out all articles indexed in journals that are not part of these and grey literature. We also limited the search to three languages, excluding research in French, Korean and Chinese, among others. As advantages we highlight that this review sought to analyse sport events from an integral perspective, without limiting the search to certain types of legacies, impacts, sport events, or actors. In this way, a wide variety of publications can be found, allowing us to glimpse the most consolidated aspects of the literature, those that have yet to be studied in greater depth or those that have not yet been focused on, as in the case of various types of sport events.

CONCLUSIONS

In relation to the aim of the study, we conclude that, according to the descriptive characteristics of the studies included in this review, most were written after 2012, mainly in 2015. A large majority of the articles are published in high quality journals with a JCR and SJR impact index. More than a quarter of the sample

focused on events occurring in the UK, with a larger majority of studies on events in European countries than in other continents. In turn, in relation to the actors studied, only two stood out, citizens and participants/athletes.

Specifically in the results of the types of sport events that were the focus of attention in the different variety of events studied, the Olympic Games received the most attention from the authors, followed by the World Championships.

It was also determined that the sport legacy in terms of the Olympic Games and world championships was the most studied, as well as the sport and economic impacts, but on a smaller scale in relation to the legacies, as the articles on this topic are evenly distributed among all types of events and impacts, This makes it difficult to compare or consolidate the results, which would allow an analysis from the perspective of the sustainability of the different events and therefore their preference when choosing those that are more sustainable or profitable in terms of their impacts, leverage and legacies.

Finally, as possible future research perspectives, it is considered that there is still a lack of legacy studies, focused on the different types of events, given that only five of them were focused on, lacking studies on small and medium-sized events, which are much more frequent and common. Also, more types of legacies and actors should be covered, as the studies found focused on only a few of them. At the same time, it is imperative to establish an agreed methodology of analysis for the study of legacies, something that this review has not been able to establish, and which would allow comparisons to be made between events that are currently impossible.

AUTHOR CONTRIBUTIONS

Conceptualization, VC. & D.C.; Data analysis, VC & RP; Writing -review and editing, VC, EP & RP; translation EP; Supervision, DC. All authors have read and agreed to the published version of the manuscript.

SUPPORTING AGENCIES

Ministerio de Educación Cultura y Deporte - Salvador de Madariaga (PRX 16/00367).

DISCLOSURE STATEMENT

No potential conflict of interest was reported by the authors.

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