CORRUPTION AND ENTREPRENEURSHIP: A BIBLIOMETRIC ANALYSIS

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ABSTRACT

The impact of corruption on entrepreneurial dynamics became an attractive topic for scholars after the appearance of public scandals that led to the delegitimization of many governments in the last 40 years. The research that explored the relationship between corruption and entrepreneurship has produced controversial results. It appears that the interaction of these two constructs is influenced by contextual factors both at an individual and national level of analysis. By using a bibliometric methodology and a fractional counting method to analyse the scientific literature on corruption and entrepreneurship, this paper identifies and analyses 180 articles recorded in the Scopus database. It represents a contribution by showing the state of the art of research on corruption and entrepreneurship and proposes future lines of research. Important results have been found about the evolution of the volume of articles and citations on this topic over time. Significant academic interest in this field commenced in the 21st century, and more specifically in the last ten years. This work also provides findings about the most prolific journals, institutions and authors, as well as the most relevant countries, with the United States and United Kingdom leading in terms of the number of publications. In addition, an in-depth analysis of authors' keywords has identified different trends, such as institutions, economic growth, shadow economy, regulation, Africa, culture, economic development, business environment, and informal economy. Finally, some future research lines are proposed, such as institutional theory, tax morale, corruption perceptions, European regions, risk aversion and institutional entrepreneurship.

Keywords: Worldwide Research, Corruption, Entrepreneurship, Scopus, Bibliometric.

INTRODUCTION

The impact of corruption, defined as:

> *"The illicit use of one's position or power for perceived personal or collective gain" (Ashforth et al., 2008)*

On entrepreneurial dynamics became an attractive topic for scholars after the appearance of public scandals that led to the delegitimization of many governments in the last 40 years (Husted, 1999).

Although Miller (2014) recognizes that:

> *"Entrepreneurs have contributed significantly to economic growth, national employment, and the robustness and renewal of economies around the world".*

He reminds us that more than a few entrepreneurs owe their economic success to dubious ethical practices, if not outright illegal behaviour, such as bootlegging and smuggling, unethical stock manipulation, tax evasion, cutthroat competition and cartels, malfeasance and corruption (Miller, 2014).

The studies carried out to explore the relationship between corruption and entrepreneurship has produced controversial results. It would appear that the interaction of these two constructs is influenced by contextual factors both at an individual and national level of analysis. Although the idea that corruption produces a sand-the-wheel effect on entrepreneurship development is frequently explored, other studies have argued that corruption might have a grease-the-wheel effect on entrepreneurial development in entrepreneurship ecosystems characterized by pervasive corruption. Moreover, it is worth noting that the dynamic relationship between corruption and entrepreneurial intention is present in both individual and national levels of analysis.

CONCEPTUAL BACKGROUND

The literature regarding analyses at the national level present two opposite hypotheses that seek to explain and describe the effect of corruption on the entrepreneurial ecosystem: the grease-the-wheel and the sand-the-wheel hypotheses.

The supporters of the grease-the-wheel hypothesis believe that in countries characterized by numerous barriers to entrepreneurial activity, such as excessively strict norms and regulations or obstacles to obtaining credit, corruption may play the role of an economic catalyst by fostering the creation of new firms since it helps people overcome bureaucratic limitations and is capable of simplifying business procedures and processes (Dreher & Gassebner, 2013). By means of an econometric model, Harbi & Anderson (2010) underlined that when the perceived corruption index increases (i.e. the economy is seen as corruption-free) the self-employment rate decreases.

Several studies have extensively explored the possible effects of corruption on a national economy and entrepreneurial development at both a national and individual level (Del-Mar-Salinas-Jiménez & Salinas-Jiménez, 2007; Dutta & Sabel, 2016; Paunov, 2016; Dreher & Gassebner, 2013; Hanoteau & Viel, 2014; Anokhin & Schulze, 2009; Glaeser & Saks, 2006; Li & Wu, 2010; Ceresia, 2018; Veresha, 2018).

In contrast, supporters of the sand-the-wheel hypothesis firmly exclude corruption as a phenomenon that may have positive effects on entrepreneurial development, due to the terrible consequences that corruption has on the competitiveness of the productive system, the problems associated with copyright and patent grants as well as the obstacles encountered by firms seeking to enter the market (Dutta & Sabel, 2016; Mauro 1995; Del-Mar-Salinas-Jiménez & Salinas-Jiménez, 2007; Xu & Yano, 2017; Smith et al., 2013).

Although these two hypotheses seem incompatible, Mauro (1995) propose that they could perhaps coexist within the same entrepreneurial ecosystem, arguing that corruption may affect a company's bottom line differently according to a few specific contextual factors. They suggest that:

> *"The grease and sand-the-wheel effects are likely to co-exist among a large number of firms, and that the industrial effect of corruption depends on the productivity drivers that fuel a firm's dynamics"*

Studies focused on the effects of corruption on the entrepreneurial ecosystem and entrepreneurship at an individual level of analysis has reported conflicting results. Allini et al.

(2017) highlighted that the entrepreneurial intentions of Italian college business students' are negatively predicted by the perception of pervasiveness of corruption in the entrepreneurial ecosystem since it produces a climate of distrust and a perceived reduction of the probability of business success. This study seems to confirm the sand-the-wheel hypothesis.

This notwithstanding, Djankov et al. (2005), in a study aimed at identifying the characteristics of Russian entrepreneurs that distinguish them from the rest of Russian citizens, demonstrated that entrepreneurs tend to be more inclined to justify corruption. The explanation given by Djankov et al. (2005) for these findings is rooted in the thought that under specific circumstances, corruption might be perceived as being inextricably and significantly integrated with common entrepreneurial activities. Moreover, these authors state that entrepreneurs are less inclined to go to court than non-entrepreneurs if a government official abused their power. This propensity seems to confirm that Russian entrepreneurs consider corruption as a phenomenon that should be managed through informal solutions, rather than judicial ones.

This weaker propensity of entrepreneurs to go to court to deal with corruption, for example when they are defrauded by clients or suppliers, might be a reflection of their distrust of the judicial system, which they consider ineffective and inefficient. Ceresia & Mendola (2019) have shown that the perception of corruption is a positive antecedent of entrepreneurial intention in a sample of Italian college students and graduates, supporting the grease-the-wheel hypothesis. In line with the studies cited earlier, Neneh (2014) has also observed a positive, but weak, correlation between exogenous obstacles-a variable referring to bribery, corruption and crime-and the entrepreneurial intentions of young Cameroon college students.

Such results seem to confirm-indirectly and at an individual level of analysis-the hypothesis formulated by Harbi & Anderson (2010) regarding the role of corruption as a grease-the-wheel factor affecting entrepreneurial intention and also supports the hypothesis proposed by Djankov et al. (2005) that entrepreneurs, working on a daily basis in an entrepreneurial ecosystem with a high degree corruption, are inclined to learn, and assimilate corruption and corrupt behaviors as part of their ordinary managerial activities.

In other words, having acquired specific skills and competencies-culturally transmitted-about planning, implementing, and monitoring corrupt behaviours, entrepreneurs might end up perceiving these activities as acceptable behaviours useful to avoiding uncertainty and lowering entrepreneurial risks (Harbi & Anderson, 2010; Ceresia & Mendola, 2019). Hence, it seems that entrepreneurs and even young would-be entrepreneurs operating within socio-economic contexts characterized by a high level of corruption may end up interpreting corruption as a viable and acceptable practice through which they can overcome the difficulties induced by institutional dimensions (North, 1991 & 2005; Urbano & Alvarez, 2014).

METHOD

A bibliometric analysis has been followed to study the state-of-art about Corruption and Entrepreneurship in scientific literature. This methodology, widely used over the last three decades (Broadus, 1987; Glänzel & Moed, 2002), studies the evolution of scientific production through quantitative and qualitative indicators (Merigó et al., 2018).

The two databases that are most frequently used for bibliometric analysis are Web of Science and Scopus. For the purposes of this study, the most appropriate database was Scopus as it registered a slightly higher number of documents and a higher number of indexed journals. Scopus, created in 2004 by the publishers Elsevier, has become an essential tool for bibliometric

analysis (Bar-Ilan, 2010) due to its ability to manage bibliographic references and quantify the citations referred to each of them.

The words "*corruption*" and "*entrepreneurship*" were searched in the titles, abstracts and keywords of the documents, retrieving 241 documents.

In order to obtain a more coherent sample, documents between 2019 and 2020 were excluded. Results were also filtered by document type and only articles in scientific journals (thus excluding proceedings or book chapters) were selected to ensure homogeneity of the 180 documents analysed.

Hence, the main indicators included in this study are the following: annual evolution in the number of articles, citations received (with their distribution or structure by ranges) and average by articles; impact index of the most prolific journals; countries and the average number of articles and citations per population, as well as the well-known h-index (Hirsch, 2005).

Additionally, for the analysis of trends, a mapping analysis with fractional counting has been used through VOSviewer software (Van-Eck & Waltman, 2014), joining three elements:

1. Concurrency;
2. Link Strength;
3. Time.

RESULTS

Scientific Literature about Corruption and Entrepreneurship over Time

Although the first article published is from 1990, it is not until the 2010s that the scientific production on corruption and entrepreneurship takes off, reaching 30 articles in 2018 (Table 1). However, the citations have had a slightly different evolution since from the first publication, articles were cited relatively frequently (e.g., 167 citations in 2002, 321 in 2008), a clear symptom of the interest that these issues have aroused in the scientific community. Indeed, the largest number of citations occurs in 2013 (390 citations), which was when it reached its peak of scientific production in this field. On the other hand, 2012 and 2016 are the years in which the highest h-index is reached (8), which already indicates the existence of a certain balance between the number of publications and citations. Table 1 also shows the number of articles with more than 100, 50, 25, 10, 5 and 1 citation.

Although not considered for the present research, Scopus also contains other document types beyond scientific articles which deserve special mention, such as reviews and proceedings. Almost all these proceedings (48 in total) are concentrated in recent years, a consequence of the interest aroused by international conferences, which could be an indicator that the publication of articles on this topic will continue to increase in the coming years.

With regards to the most cited articles, the top ten in this ranking were published in the 21st century. Specifically, the two articles with the highest number of citations are from 2008 and 2009. Perhaps this is another element to take into account when explaining why there was a greater production of articles in subsequent years. The first is *"Institutional context and the allocation of entrepreneurial effort"* (Bowen & De-Clercq, 2008) (239 citations), published in Journal of International Business Studies. This inductive study articulates the kinds of institutional transaction costs that an entrant incurs in different phases, and the conditions that lead to the growth of these costs. The other article is *"Entrepreneurship, innovation, and corruption"* (Anokhin & Schulze, 2009) (174 citations), published in Journal of Business

Venturing. The authors argue that efforts to control corruption increase levels of trust and a better control of corruption will also be associated with rising levels of innovation and entrepreneurship.

Year	Articles	Citations	≥50	≥25	≥10	≥5	≥1	C/A	h-index
	(A)	(C)						(Average)	
2018	30	41	0	0	0	3	11	1.37	4
2017	22	64	0	0	3	15	15	2.91	4
2016	26	318	2	4	8	14	24	12.23	8
2015	19	113	0	1	3	8	16	5.95	7
2014	13	68	0	0	3	6	10	5.23	5
2013	15	390	2	3	5	7	11	26.00	6
2012	13	260	1	1	8	10	13	20.00	8
2011	6	72	0	1	3	4	5	12.00	4
2010	11	160	1	1	2	3	7	14.55	3
2009	3	185	1	1	1	2	3	61.67	2
2008	3	321	2	3	3	3	3	107.00	3
2007	3	49	0	1	2	2	3	16.33	3
2006	2	115	1	1	1	1	2	57.50	1
2005	2	77	0	2	2	2	2	38.50	2
2003	1	12	0	0	1	1	1	12.00	1
2002	4	167	2	2	2	4	4	41.75	4
2001	1	1	0	0	0	0	1	1.00	1
2000	1	6	0	0	0	1	1	6.00	1
1998	2	21	0	0	1	1	2	10.50	2
1997	2	3	0	0	0	0	1	1.50	1
1990	1	4	0	0	0	0	1	4.00	1
Total	**180**	**2447**	**12**	**21**	**48**	**87**	**136**	**13.59**	**22**

Table 1
ANNUAL EVOLUTION OF ARTICLES AND CITATIONS

Source: Own Compilation

Journals, Institutions, Authors and Countries: Highlights

The most prolific journal in the topics analysed is "*Small Business Economics*" (7 articles). This journal also has the highest h-index (6). "*Journal of Developmental Entrepreneurship* and *Mediterranean Journal of Social Sciences*" are the following journals in this ranking, with five articles each. Nevertheless, there are no major differences in the number of articles published since the journal is ranked tenth has published three articles in this field (Table 2). "*Journal of Business Venturing*" is the journal with the highest number of citations

(402), and also the highest impact factor in this ranking (4835). This journal has also published three of the ten most cited articles on corruption and entrepreneurship: the aforementioned:

"Entrepreneurship, innovation, and corruption" (239 citations), "Which institutions encourage entrepreneurial growth aspirations?" (Estrin et al., 2013) (159 citations), and "Entrepreneurship and illegality: Insights from the Nigerian cross-border trade" (Fadahunsi & Rosa, 2002) (69 citations)."

Another relevant journal, although with quite recent publications on the topic analysed, is "*Legal, Ethical and Regulatory Issues*". To date it has published five articles in Scopus in this field (two of them have been published in 2019, and the oldest in 2017). Two of these articles focus on Russia (effectiveness of Russian anti-corruption state policy, and corruption in Russian institutions of higher professional education), two on Malaysia, and the other focuses on fundamental problems for the development of Euro integration legislation of Ukraine in 2014-2018.

Table 2
MOST PROLIFIC JOURNALS

Journal	Articles (A)	Citations (C)	C/A (average)	h-index	Scimago impact
Small Business Economics	7	198	28.29	6	1.913
Journal of Developmental Entrepreneurship	5	28	5.60	2	0.247
Mediterranean Journal of Social Sciences	5	23	4.60	2	0.663
Journal of Business Ethics	4	120	30.00	4	1.860
International Journal of Entrepreneurship and Small Business	4	9	2.25	2	0.396
Journal of Business Venturing	3	402	134.00	3	4.835
Journal of Small Business and Enterprise Development	3	56	18.67	2	0.504
Entrepreneurship and Sustainability Issues	3	30	10.00	3	1.244
Journal of Entrepreneurship and Public Policy	3	14	4.67	2	0.328
International Journal of Entrepreneurship	3	9	3.00	2	0.251

Source: Own Compilation

The University of Sheffield (United Kingdom) (9 articles) leads the ranking of institutions supporting research on this subject (Table 3). It is also worth mentioning that seven of these publications are by Professor Colin C. Williams, the most prolific author on the topic. Indiana University (United States) (6 articles) is the second ranked institution in terms of publication of articles. In addition, there is another relevant author, Professor Chowdhury, with four published articles. Finally, it is important to note that the University of Sheffield, aside from being the most prolific, is also the one that cites the 180 articles analysed in this research most often, exactly 24 times.

Table 3 MOST ACTIVE INSTITUTIONS									
Institution	**Country**	**A**	**C**	**h**	**C/A**	**≥25**	**≥ 10**	**≥ 5**	**≥ 1**
University of Sheffield	United Kingdom	9	119	4	13.22	1	4	4	7
Indiana University	United States	6	120	5	20.00	1	3	6	6
Florida State University	United States	5	14	3	2.80	0	0	2	3
Univerzita Tomase Bati ve Zline	Czech Republic	4	68	4	17.00	2	2	3	4
University of Valencia	Spain	4	19	2	4.75	0	1	1	4

Source: Own Compilation

As expected, after analysing the most active institutions in the publication of articles in this field, the United States and the United Kingdom are also the countries with the highest volume of articles (Table 4). The United States has 57 articles, with 1076 citations and an h-index of 13, clearly leading the ranking in all these elements. The United Kingdom is the second most active country, with 25 articles, 674 citations and an h-index of 11. Other relevant countries in this field are Spain, Germany and Russia. It is also worth noting the presence of countries like Nigeria (7 articles) and Ukraine (4 articles), not usual in most bibliometric rankings. Table 4 also shows the number of articles (A/Pop) and citations (C/Pop) in relation to the population of each country.

Table 4 COUNTRIES AND PUBLICATIONS										
Country	**A**	**C**	**h-index**	**C/A**	**≥25**	**≥10**	**≥5**	**≥1**	**A/Pop**	**C/Pop**
United States	57	1076	13	18.88	8	16	32	51	0.17	3.27
United Kingdom	25	674	11	26.96	5	12	14	20	0.37	10.06
Spain	14	199	7	14.21	2	7	7	11	0.30	4.23
Germany	9	343	5	38.11	3	4	6	6	0.11	4.13
Russian Federation	8	23	3	2.88	0	1	2	3	0.05	0.16
South Africa	7	42	4	6.00	0	2	4	5	0.12	0.71
Nigeria	7	8	2	1.14	0	0	0	4	0.03	0.04
Czech Republic	6	71	4	11.83	2	2	3	5	0.55	6.45
France	5	30	3	6.00	0	2	3	4	0.08	0.46
Canada	4	257	3	64.25	1	2	3	3	0.11	6.76
Greece	4	40	2	10.00	1	1	2	3	0.36	3.64
Poland	4	26	1	6.50	1	1	1	1	0.11	0.68
Norway	4	8	2	2.00	0	0	1	2	0.80	1.60
Ukraine	4	6	2	1.50	0	0	0	2	0.10	0.14

Source: Own Compilation

Trends

Figure 1 shows a network of the co-occurrence of the authors' keywords, by using a fractional counting method. The lower limit of occurrences of a keyword was established as two for the 507 keywords found, thus 78 keywords are highlighted. This map identifies the evolution of the most frequent terms in the research on corruption and entrepreneurship, the most important of which are the following: Entrepreneurship; Corruption; Institutions; Economic Growth; Shadow economy; Regulation; Africa; Culture; Economic development; Business environment; Informal economy. In addition, more than 16 articles are focused on Russia, and 10 on Nigeria, mainly related to shadow economy, which is consistent with the countries identified as some of the most relevant in scientific production in this field. It is also worth highlighting the presence of some pairs of terms closely related in the literature, such as: Innovation Technology (IT) and Ukraine; taxes and Bulgaria, Croatia and the Former Yugoslav Republic of Macedonia (FYR).

The most recent keywords in the map, shown in yellow, correspond to the most current and relevant trends. Thus, according to the map, trends in research are focused on: Institutional theory; Kazakhstan; Tax morale; Corruption perceptions; European regions; Risk aversion; Institutional entrepreneurship.
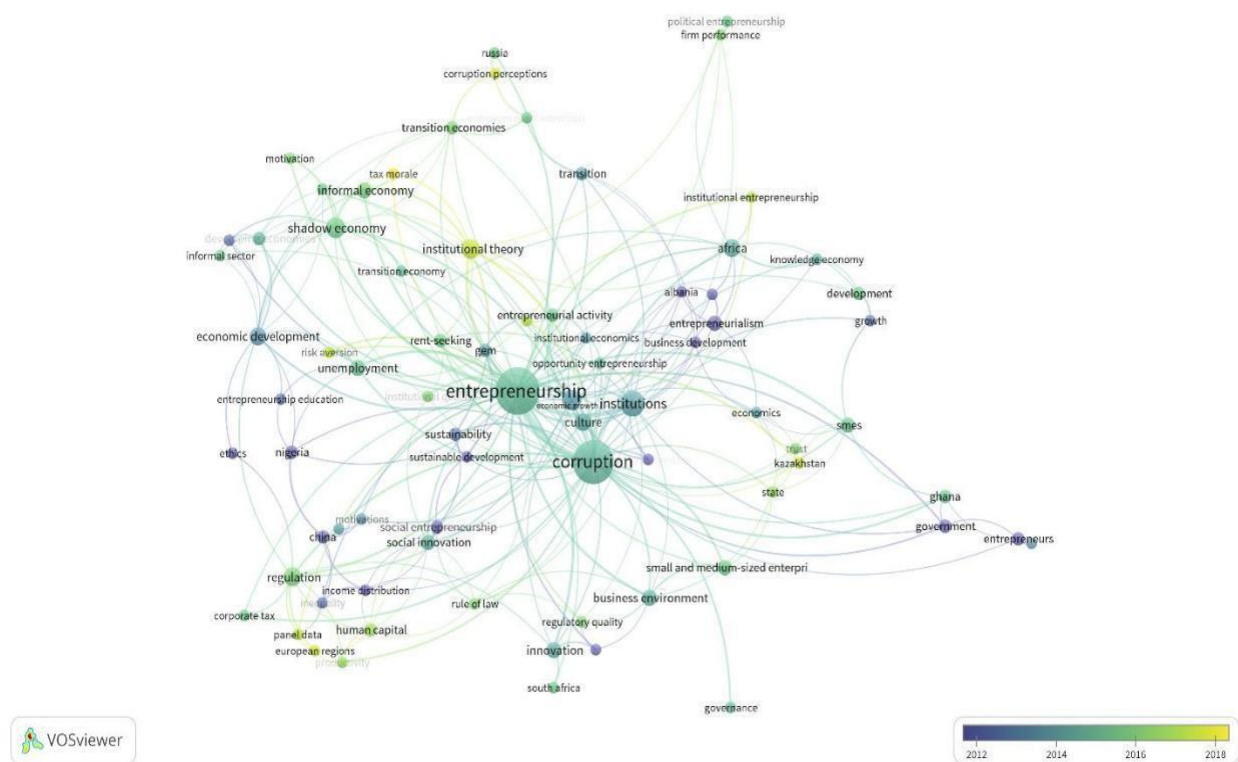

FIGURE 1
TIME OUTLOOK ON SCIENTIFIC TRENDS

CONCLUSION

The modernization of a country also implies combating corruption, which has positive consequences, such as the attraction of start-ups, since entrepreneurs usually prefer to operate in

an environment where institutions and markets are not tainted by corruption. Thus, the effective fight against corruption is one of the priorities of societies and governments, and it requires the efforts of various actors. In the first instance, public bodies and governmental entities, which have the resources to investigate and punish corrupt practices. It is also important to promote public policies to fight corruption that, in turn, strengthens the entrepreneurial ecosystem. On the other hand, mass media have a relevant responsibility in social control and information. The private sector must also adopt codes of conduct that fight against corruption. It is also very important to stimulate academic research about corruption and its consequences on entrepreneurship.

There is a large volume of research on corruption which analyses macro factors such as political democracy, economic freedom, or decentralization. However, when two concepts such as corruption and entrepreneurship are related, new terms appear and numerous areas of knowledge can be found that are involved and interested in the research. Furthermore, many articles can be included in more than one area of knowledge. The knowledge area of "*Business, Management and Accounting*" is the main area researching this topic, with 100 articles, representing 55.56% of the total scientific publication. "*Economics, Econometrics and Finance*" also has great relevance (90 articles), representing 50% of the total publications. The area of Social Sciences is also important in this discipline, with 42.78% of the articles published on this topic.

Corruption can take many forms, but when it is related to entrepreneurs, it focuses mainly on taxes, institutional corruption, and lately, the issue of new technologies (IT) in relation to corruption. Different lines of research have been identified in this field. Thus, informal economy, shadow economy and unemployment are well connected terms in some research. Another interesting area is that of transition economies, economic growth, business development, entrepreneurialism, and small and medium-sized enterprises (SMEs). Institutions, regulation and taxes are also a very important research lines. Another relevant issue is that of sustainability and the social impact of entrepreneurship. In this sense, another research stream can be identified in terms such as sustainable development, social entrepreneurship, or social innovation. Finally, another field of interest is related to geographical or regional aspects. Africa, with countries like Nigeria, Ghana, or South Africa, is the region most analysed in terms of corruption and entrepreneurship, although other areas and countries, such as China or Kazakhstan, and some European regions (e.g., Russia and Albania) also make an appearance.

Whereas the academic interest in corruption and entrepreneurship does not appear until the 21st century, and more specifically in the last ten years, with the United States and United Kingdom leading in terms of publications in this field, the topic has acquired greater importance, and presents new challenges for future research. One of these challenges is related to the use of Institutional theory for explaining corruption. This theory considers the processes by which structures, including schemes, rules, norms and routines, are established as authorized guidelines for social behaviour. Another interesting research stream is the one that investigates perceptions of corruption and tax morale. These aspects are intimately related to culture, education in entrepreneurship, regulation and control systems. Another research line investigates the influence of risk aversion and uncertainty about business corruption. Finally, there is another stream focused on institutional entrepreneurship, that is, the mediating role of corruption in the relationship between entrepreneurship and institutional quality, or analysing the relationship between regulation, economic freedom and entrepreneurship.

This paper represents a contribution by showing the state of the art of research on corruption and entrepreneurship, identifying the annual evolution of publications on this topic, the most prolific journals, countries, authors, and institutions supporting research, as well as identifying the main trends and pointing to potential future lines of research and topics.

The research limitations of this study are derived from the methodology used, since bibliometric analysis is quantitative in nature. However, in order to consider qualitative aspects and provide a more complete vision of the analysed field, this paper not only considered the number of articles published, but also some qualitative features and standardized metrics. Thus, future research could contain other quantitative or qualitative methods, such as a meta-analysis or other also secondary databases.

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