

# CORPORATE GOVERNANCE AND THE ENVIRONMENT IN THE HEALTH SECTOR: SYSTEMATIC LITERATURE REVIEW

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## Abstract

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This study aims to explore the different forms of corporate governance in the health sector, how they interact, and analyze the emerging research trend through a systematic literature review (SLR) in the period 2015-2019. The Scopus and ISI Web of Science databases were used to select the 167 articles analyzed. The coverage of corporate governance research was centred on adapting the PRISMA analysis, highlighting the environment which corporate governance belongs to and analysis of the co-occurrence of the keywords used in the studies. Through Grounded theory, a conceptual model was developed, emphasizing the main attributes that influence governance at the macro-, meso- and micro-levels, in the health area, and raising a future agenda for future research in this area: (1) quality of health care, (2) corporate social responsibility in health, (3) health risk management and (4) global health governance. The results of this research aim to guide governments towards emerging regulatory trends, warning about the risks of the impact of corporate governance on health, or the lack of it, on the quality of services. Analysis of the quality of health care is intrinsically related to the environment, although this aspect has received little attention from researchers.

**Keywords:** Health, Corporate Governance, Environment, PRISMA Analysis, Regulation

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## 1. INTRODUCTION

Recent decades have witnessed increased development of policies to cope with institutional

conflicts arising from actions which, directly or indirectly, affect the health sector. Due to the emerging challenges affecting the whole planet, there is a clear need to promote health while considering the depreciation of natural capital and

support for nature so that economics and the natural world are not falsely separated. Policies should balance social progress, environmental sustainability and the economy (Whitmee et al., 2015). The effects of environmental changes on health represent serious challenges to gains in global health and are likely to become increasingly prevalent in the second half of this century. Those strong tendencies are caused by highly inefficient and unsustainable patterns of resource consumption and technological development, together with population growth.

The conceptual bases for better understanding of the nature of corporate citizenship can be found in the literature on corporate social responsibility (Carroll, 2010), the capacity of corporate social response (Clarkson, 1995), corporate social performance (Albinger & Freeman, 2000), the theory of the firm (McWilliams & Siegel, 2001) and stakeholder involvement (Strand & Freeman, 2013). Institutions are constantly faced with managing the expectations of a society increasingly alert to the health and environmental risks associated with economic development (Wilshusen & MacDonald, 2017) and it is widely recognized that the conventional relationship between environmental concerns and companies has been opened one of opposition for a long time and that a change in direction towards new perspectives has been called for (Adams, 2008).

Numerous approaches to corporate governance in health have been followed by different authors: quality of healthcare (Williamson, Benjamin, Devine, Katz, & Pink, 2015; Butler, 2016; Ferguson, Power, Stevenson, & Collison, 2017; Brown, Dickinson, & Kelaher, 2018; Erwin, Landry, Livingston, & Dias, 2018; Berland, 2019; Kong, Shi, & Yang, 2019; Kooli, 2019; Pather & Mash, 2019; Roller, 2019; Sheard, Clydesdale, & Maclean, 2019), corporate social responsibility (Tuan, 2015; Edgeman, Neely, & Eskildsen, 2016; Camilleri, 2017; Rodriguez, Svensson, & Eriksson, 2018; Shabbir, M. S., Shariff, Salman, Bakar, & Shabbir, M. F., 2018; Cousins, Richter, Cordner, Brown, & Diallo, 2019; do Nascimento Ferreira Barros, Rodrigues, & Panhoca, 2019; Hepworth, 2019; Lee, 2019), risk management in health (Aragón Amonarriz & Iturrioz Landart, 2016; Jizi & Nehme, 2017; Ames, Hines, & Sankara, 2018; da Silva Etges, Grenon, de Souza, Kliemann Neto, & Felix, 2018; Carter, Meinert, & Brindley, 2019; Etges et al., 2019b) and global governance in health (Weir, Jones, & Wright, 2015; Lee, Eckhardt, & Holden, 2016; Slade et al., 2017; Delany, Signal, & Thomson, 2018; Brems & McCoy, 2019; Bugbee, 2019; Gonenc & Scholtens, 2019).

Understanding the effects of corporate governance on health institutions' performance through observing multiple factors is an important step towards understanding global health issues. Therefore, by summarising the evidence reported in various primary source articles with the quality of the Scopus and ISI *Web of Science* databases, through applying explicit, systematized search methods, critical appreciation and a summary of the information selected, systematic reviews are useful in integrating the information from a set of studies

made and classified under corporate governance which can present conflicting and/or coincident results. They also identify themes requiring evidence, helping to guide future research.

Therefore, this review aims to explore the most prominent subjects related to corporate governance and analyse new research tendencies in health through a systematic review of articles over the last five years so as to make suggestions for a future research agenda.

The innovation lies in adapting the PRISMA analysis (Liberati et al, 2009) so as to classify those studies according to their purpose, sources of information, the form of research, data collection and treatment, participants involved, type of study, the period of longitudinal research and their setting, as well as the construction of a conceptual model, after analysis of key-word co-occurrence, to be able to understand the relations between the attributes involved in the studies.

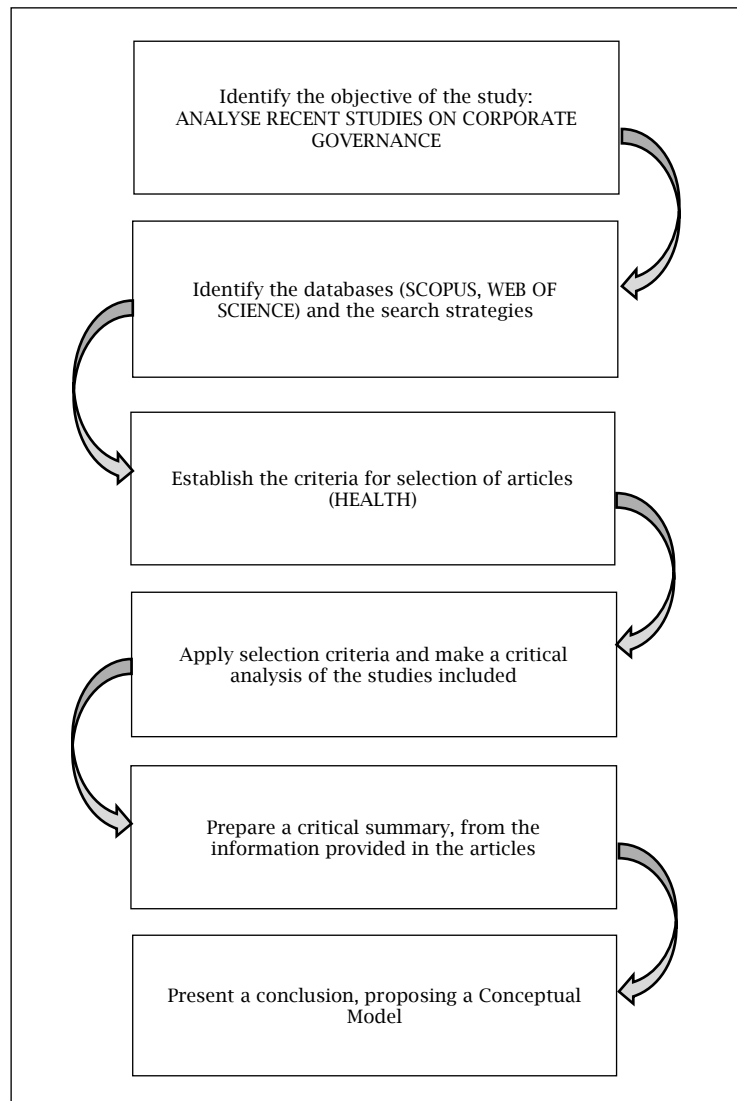
The remainder of the article is structured as follows. Section 2 presents the methodological aspects, including the protocol used for the SLR, the databases used, the method of selecting articles to incorporate in the review and PRISMA with analyses of the co-occurrence of keywords in the studies selected. Section 3 presents the general results of the analyses, with the classification of studies in the environment, as well as the clusters of keyword co-occurrence. Section 4 discusses the attributes identified in the analysis of keyword co-occurrence, culminating, through Grounded theory, informing the conceptual model arising from the SLR. Section 5 presents the conclusions, limitations of the study and suggestions for future research.

This study is relevant in as much as the environment where the studies analysed are developed is extremely important, given the complexity of the interactions between that environment and activities related to healthcare, with it being the State's responsibility to regulate those activities. Political leaders' actions culminating in regulating the health sector originate in the socio-cultural and economic conditions in which the research is set, promoting important guidelines that can help to form public policies. Most studies focus on partial aspects, directing analysis to dimensions that could be classified as secondary, for health policy. So there is an important gap in scientific knowledge on the topic, with significant consequences for assessment practices.

## 2. METHODOLOGY

The research method is the Systematic Literature Review (SLR). As the aim of the review was defined as being to analyse trends in emerging studies, important articles were included through orientations and strategies that increase the specificity of searches. In selecting studies, assessment of the titles and abstracts identified followed the inclusion and exclusion criteria defined as "corporate governance in health". A general description of the review process is presented in Figure 1.

Figure 1. Protocol of the SLR used

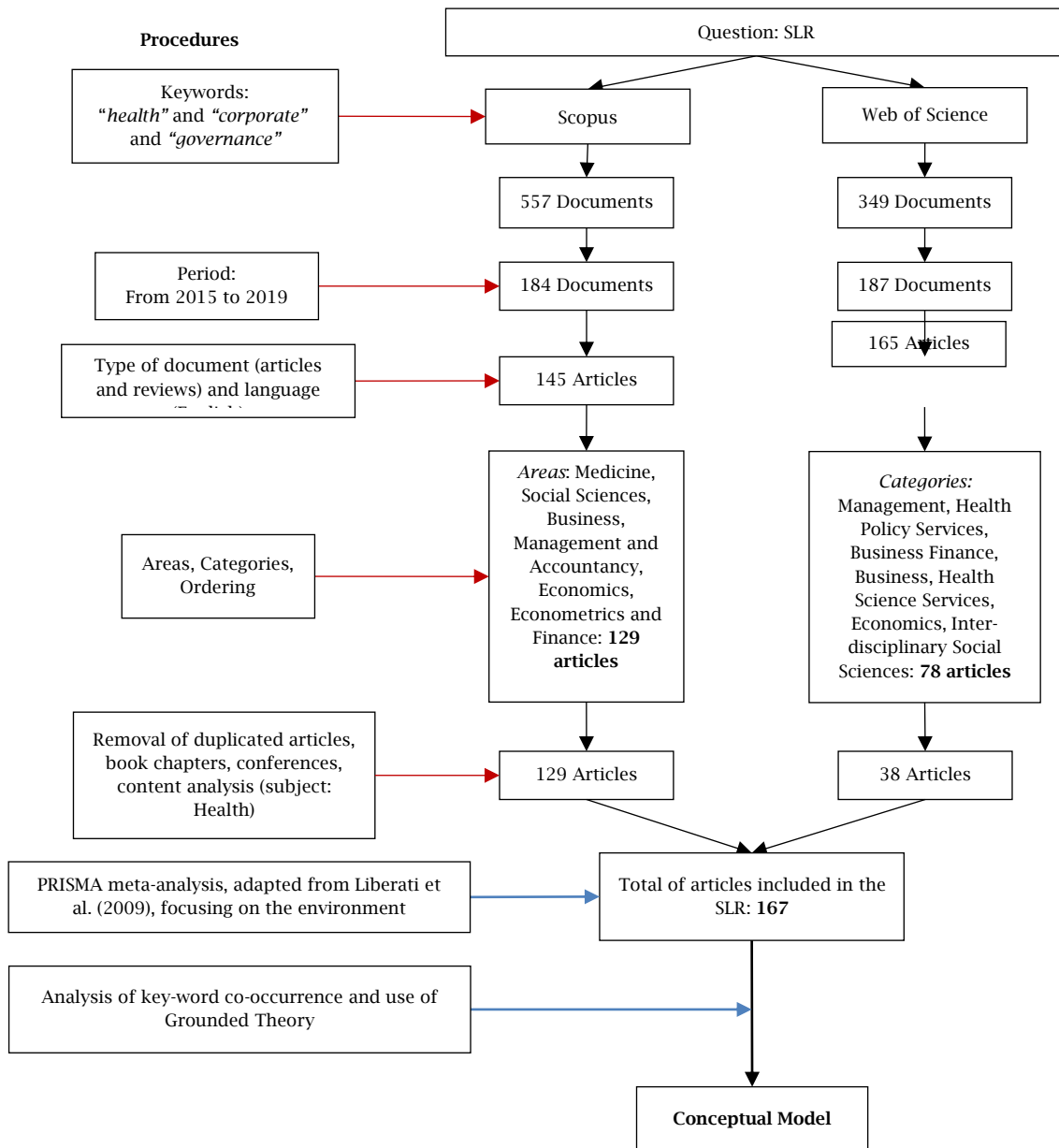


A search of the Scopus and ISI *Web of Science* databases by the keywords of “*health, corporate governance*” resulted in 906 articles which, after limitations such as the period (2015 to 2019), type of document (articles and reviews), in English, and some area and category limitations, left 167 articles. Through Grounded theory, the use of the PRISMA meta-analysis (Liberati et al., 2009) and the analysis of key-word co-occurrence (VOSviewer) allowed the formulation of a conceptual model. A summary of the method used for the selection of articles is presented in Figure 2.

### 2.1. PRISMA analysis

In this study, an adaptation of the meta-analysis of approximation (PRISMA) by Liberati et al. (2009) is applied to the 167 studies related to corporate governance in health. PRISMA was developed in the field of health sciences but has been applied successfully in research on public administration (Thompson & Higgins, 2005; Moyson, Raaphorst, Groeneveld, & Van de Walle, 2018). The quality of PRISMA as a way to carry out systematic literature reviews, its elaboration process including repeated improvements based on deliberation among review specialists, is due to the transparency of the approach (Figure 3).

Figure 2. Sorting of SLR articles



Various methods can be used in a systematic literature review, such as (1) the five-stage methodology of Khan, Kunz, Kleijnen and Antes (2003) (which involves framing the questions for the review, identification of the literature, assessing the quality of articles, summarising the studies reviewed and interpreting the results), (2) the stages defined by Tranfield, Denyer, and Smart (2003), which involves 'planning', 'search', 'sorting' and 'extraction/synthesis/report', (3) the bibliometric analysis includes mainly distribution of the results of the search, the influence of authors and institutes and points of access to the search, among others. For this literature review, the PRISMA method was chosen. All studies, including systematic reviews, should be reported fully and transparently, to let

readers assess the strengths and weaknesses of the research. PRISMA (Liberati et al., 2009) consists of a list of 27 items and a flow diagram in four stages, which may or may not use statistical methods (depending on the aims of the analyses). There is the risk of the topic being wide-ranging, and so the articles were analysed case by case so that their inclusion or exclusion could be systematic. To minimize the risk of bias, by using the PRISMA method, the objectives of the review were clearly defined, with the methodology being explicit and reproducible. In addition, the studies identified to meet the criteria of eligibility and summaries of the characteristics and results of the studies were included.

Figure 3. PRISMA analysis adapted from Liberati et al. (2009)



**2.2. Environment**

Currently, different sectors and organisations discuss how to define and extend knowledge about the impact of research on the attempt to combine economic and social results, as happens in the health sector (Adam et al., 2018). In various ways, many authors use analysis of the environment (Mirzoev et al., 2017; Field, Wild, Woodward, Macmillan, & Mackie, 2018; Harper, Maden, & Dickson, 2019; Bodolica, 2019; Lim, Schoo, Lawn, & Litt, 2019; Naderi, Gholamzadeh, Zarshenas, & Ebadi, 2019) as explanations or demonstrations of consequences reflected in the interactions between individuals, organisations and society, and the predominant level of analysis.

Bodolica (2019) analyses different articles from the perspective of relevant aspects for the domain of corporate governance and leadership that can be grouped based on their predominant level of analysis. For the author, (1) consultations at the macro-level examine the general advances in corporate governance infrastructure and regulatory developments, (2) research at the micro-level concentrates on a set of well-defined strategies and practices of governance and leadership that are

adopted in organisations with the aim of raising firm performance and achieving results, and finally, (3) research at the meso-level provides a viable nexus between the other two levels, analysing the effectiveness of governance initiatives led by the state through the impact of their implementation on micro-processes and dynamics in companies today (Bodolica, 2019).

The description of a Model of the Impact of Evidence was proposed by Harper et al. (2019) in England, based on the existing concept of micro-, meso- and macro-levels of impact in health covering five levels: micro-level of individuals (levels 1 and 2), teams (level 3) and organisations or local communities (level 4), and finally, impacting at the macro-level (level 5) to demonstrate changes in the professional sector or in society. In the model proposed by Harper et al. (2019), the meso-level is not specifically designated, considering that the authors admit there is a transition between teams (level 3) and local organisations or communities (level 4), and depending on the context analysed, levels 3 and/or 4 can emerge as the meso-level. The study by Lim et al. (2019) focuses on facilitating the change in health-related behaviour through the use of the motivational interview, aiming to understand

learning environments at levels (1) micro-clinical, through using enabling technology, focus on patient-centred service, (2) meso-organisational level, with the development of a shared vision and an organisational culture of support for continuous learning, and (3) macro-level, with the adoption of systemic thinking and an organised learning approach. Other studies classify different questions at micro-, meso-, exo- and macro-levels in the attempt to understand multi-dimensional phenomena (Repullo & Freire, 2016; Mirzoev et al., 2017; Barrientos-Trigo, Vega-Vázquez, de Diego-Cordero, Badanta-Romero, & Porcel-Gálvez, 2017; Field et al., 2018; Harper & Dickson, 2019; Naderi et al., 2019).

The studies made by the authors, at different levels of elaboration, seek to create knowledge related to governance through individual, organisational, national and international analyses to estimate possible correlations between them. The alignment and compatibilities of institutional and cultural particularities are directly linked to the successful adoption of corporate governance policies (Bodolica & Spraggon, 2009).

### 2.3. Analysis of keyword co-occurrence

In 1922, E.W. Hulme proposed the expression “statistical bibliography” in seminars on the subject at the University of Cambridge, England (Pritchard, 1969), its aim corresponding to what would later be proposed as the “bibliometrics” of Pritchard. Three specific laws govern bibliometric studies, i.e., Lotka’s law, Bradford’s law and Zipf’s law (Figueiredo, Quelhas, Neto, & Ferreira, 2019). Lotka’s law addresses researchers’ productivity and anticipates that in a given period the relation between the number of authors and the number of articles they publish will decrease in the order of  $1/n^2$ . In other words, a few authors publish a lot, while the majority publish little (Voos, 1974). Bradford’s law deals with the dispersion of scientific production in a certain area between the journals publishing in that field. Dividing all the scientific production on a given theme in parts with the same number of articles, the first areas will show a lower number of journals - more productive ones - and in the following areas, a successively greater number of journals publishing the same number of articles as previous areas (Brookes, 1969). In turn, Zipf’s law is applied to analysing the frequency (or “occurrence”) of words in a text, so that a limited group of words has a higher rate of occurrence, while a large

number of words has a lower frequency; those with the greatest frequency-determining a document’s central topic (Alvarado, 2002). This study also mapped the work with the greatest impact, besides the socio-metric analysis, considering the networks of keywords co-occurrence.

The relation of co-occurrence between two keywords is determined by the number of articles in a base of documents in which both occur together, in the title, abstract or the list of keywords (van Eck & Waltman, 2014). Analysing these networks, possible research subjects on corporate governance in health can be mapped. The size of the node indicates the frequency of a keywords occurrence, and the relationship between the nodes is stronger, the closer they are.

To facilitate viewing, the network formation, of the 1.035 keywords, 74 co-occurred at least four times, resulting in thirty-five nodes organised in four clusters. So these are the words with the greatest frequency and which, according to Zipf’s law (Zipf, 1949), determine the central topic of a body of documents.

In this context, this study includes an analysis of the SLR from two perspectives: (1) that of the environment seeking governance practices and their implications for corporate policies, decision-making and performance (Carney, 2011; Agrawal & Knoeber, 2012; Kaplan, 2012), according to the definitions of Bodolica (2019) and arising from the adaptation of the PRISMA analysis by Liberati et al. (2009) and (2) analysis of keyword co-occurrence, where through Grounded theory a conceptual model of governance in health is proposed.

## 3. RESULTS

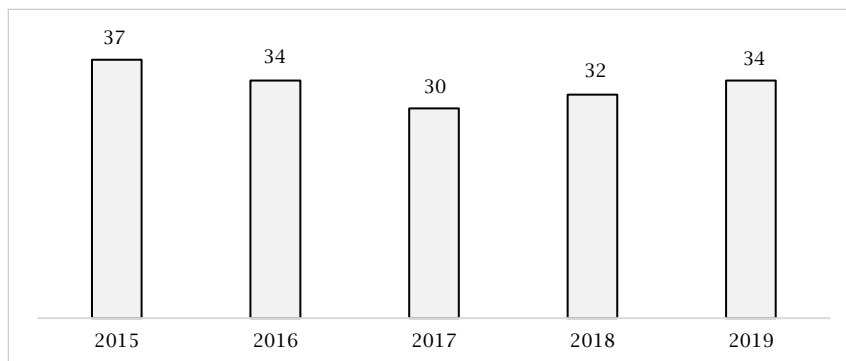
### 3.1. General analyses

Of the 167 studies analysed and distributed between 2015 and 2019, a certain uniformity of distribution is observed, showing the growing importance of the subject of corporate governance in health (Figure 4).

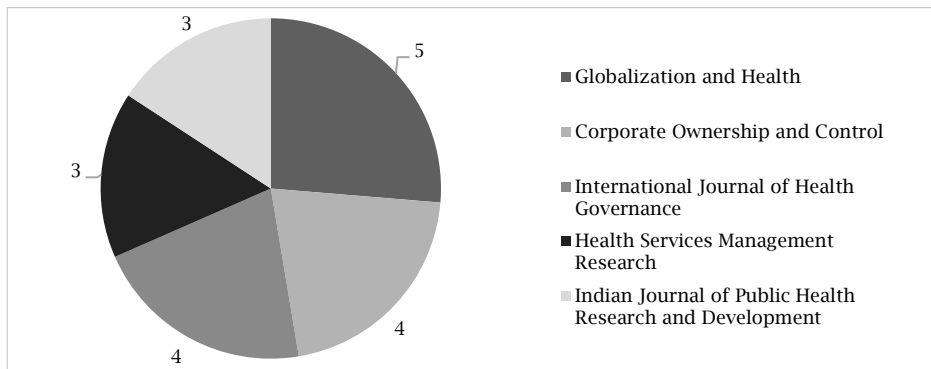
Of the five journals with the greatest number of publications, four are in the area of health and one addresses subjects linked to corporate governance (Figure 5).

In the ranking of journals (the top ten) with the highest impact factors, all appear with one publication, except for the *Journal of Business Ethics*, with three (Table 1).

Figure 4. Number of articles published by year



**Figure 5.** Journals with the highest number of publications



**Table 1.** Journals with the highest impact factors and a number of articles.

Journal	Impact factor 2018/2019	Number of articles
The Lancet	59.102	1
Global Environmental Change	10.29	1
Obesity Reviews	8.73	1
Journal of Financial Economics	7.34	1
Journal of Cleaner Production	7.32	1
Journal of Industrial Ecology	4.72	1
Journal of Business Ethics	4.46	3
British Journal of Management	4.44	1
Energy Economics	4.15	1
Safety Science	3.61	1

The Lancet is one of the oldest and best-known medical journals in the world and considered one of the most prestigious. It is published by Elsevier, in the United Kingdom, by the Lancet Publishing Group. Created in 1823, it has an Impact Factor of 59.102 (2018). These factors make the journal one referred to widely when the subject of health is involved, explaining the discrepancy between the number of citations of this article compared to others.

The United States leads the ranking with the highest number of publications (21,56%). Articles are classified as non-specified in the case of theoretical studies or those involving countries in South America, the European Union or a non-specified international sample. Five studies were carried out jointly (the United States and Brazil; the United States, Australia, Canada, England, and Japan;

Indonesia and Malaysia; Norway and Sweden; the United Kingdom, New Zealand, South Africa, and Ghana). There was one article for the remaining countries: Afghanistan, Sub-Saharan Africa, Germany, Argentina, Austria, Qatar, Korea, Denmark, France, Ghana, Ireland, Jordan, Lebanon, Lithuania, New Zealand, Oman, Portugal, Czech Republic, Thailand, Uganda, Uruguay and Vietnam (Figure 6).

Figure 7 presents the number of publications versus the number of article citations per year. Of the 167 articles, the most cited (Table 2) deal with different topics, including the effects of environmental changes on health, the use of corporate social responsibility to improve institutions' behaviour, ethical and legal aspects, and the association between governance and companies' financial performance, among others.

**Figure 6.** Countries with the highest number of publications

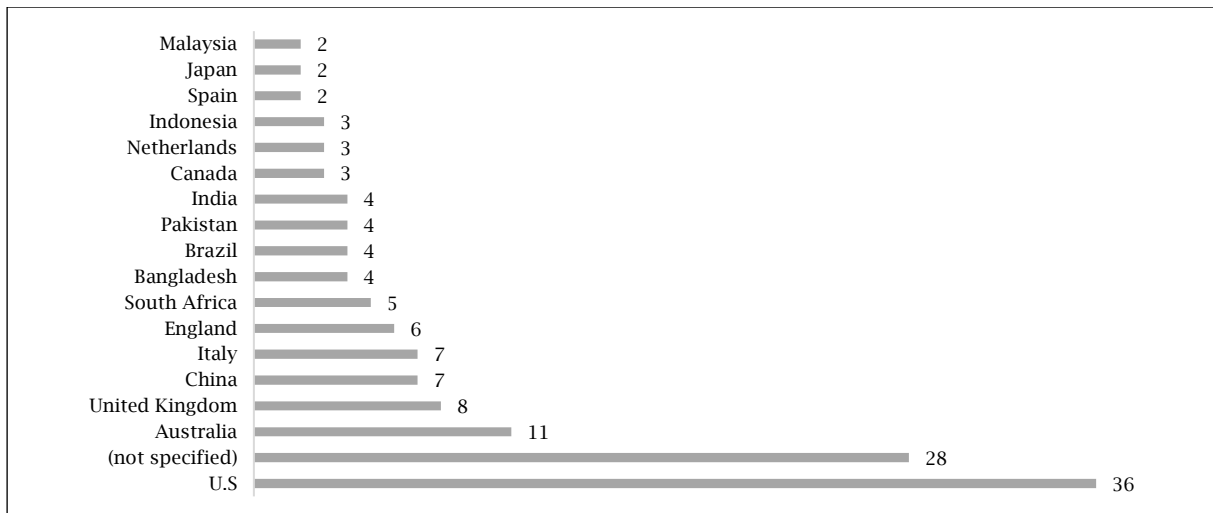


Figure 7. Number of publications/citations by year

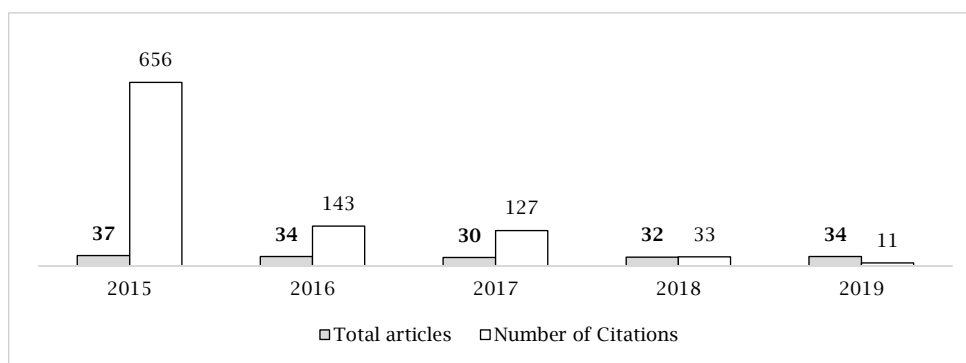


Table 2. Most cited articles

Author/ year	Article title	Journal	No citations	Subject
Whitmee et al. (2015)	Safeguarding human health in the Anthropocene epoch: Report of the Rockefeller Foundation-Lancet Commission on planetary health	The Lancet	424	Deals with the effects on health of environmental changes that are serious challenges to the gains in global health in recent decades which will probably become increasingly prominent in the second half of this century and beyond.
Flammer and Luo (2017)	Corporate social responsibility as an employee governance tool: Evidence from a quasi-experiment	Strategic Management Journal	50	This study examines whether companies use corporate social responsibility to improve employee involvement and mitigate adverse behaviour in the workplace (evasion, absenteeism).
Woolley et al. (2016)	Citizen science or scientific citizenship? Disentangling the uses of public engagement rhetoric in national research initiatives Donna Dickenson, Sandra Soo-Jin Lee, and Michael Morrison	BMC Medical Ethics	37	Examines the ethical and social implications of the recruitment strategy used to encourage the public to become involved in research undertakings.
Carter (2015)	Making the Blue Zones: Neoliberalism and nudges in public health promotion	Social Science and Medicine	30	Exemplifies the process of "neoliberal governance", by which individuals learn to govern themselves and their "life projects" according to a market-based rationale.
Rossi, Nerino, and Capasso (2015)	Corporate governance and financial performance of Italian listed firms. The results of an empirical research	Corporate Ownership and Control	27	Finds a possible relationship between the corporate governance of Italian listed firms and their financial performance.
Ntim (2016)	Corporate governance, corporate health accounting, and firm value: The case of HIV/AIDS disclosures in Sub-Saharan Africa	International Journal of Accounting	25	Investigates the impact of corporate governance on social and environmental accounting, focusing specifically on corporate health accounting.
Chung, Liu, Wang, and Zykaj (2015)	Institutional Monitoring: Evidence from the F-Score	Journal of Business Finance and Accounting	22	Examines the persistent role of monitoring institutional investors and identifies the financial aspects of a firm in which institutional monitoring improves.
Kirat (2015)	Corporate social responsibility in the oil and gas industry in Qatar; perceptions and practices	Public Relations Review	21	Analyses the perceptions and practices of corporate social responsibility in Qatar.
Demeritt, Rothstein, Beaussier, and Howard (2015)	Mobilizing risk: Explaining policy transfer in food and occupational safety regulation in the UK	Environment and Planning A	20	Explores the institutional factors moulding the transfer and adaptation of risk-based approaches to regulations inside and between health and occupational safety (HOS) regimes and food safety in the United Kingdom.
Carmenta, Zabala, Daeli, and Phelps (2017)	Perceptions across scales of governance and the Indonesian peatland fires	Global Environmental Change	18	Illustrates the importance of, and the approaches to examining perceptions at levels of governance (international, national, local) and sectors (society, government, companies).
Clapp and Scrinis (2017)	Big Food, Nutritionism, and Corporate Power	Globalization	18	Addresses Big Food companies' power to influence policy in the food sector.
Ellwood and Garcia-Lacalle (2015)	The Influence of Presence and Position of Women on the Boards of Directors: The Case of NHS Foundation Trusts	Journal of Business Ethics	18	Examines the influence of women on boards of administration of the National Foundation of Health Services in England.
Camilleri (2015)	Valuing Stakeholder Engagement and Sustainability Reporting	Corporate Reputation Review	18	Conceptual study of the inter-governmental guidelines and principles for corporate social responsibility, corporate governance and sustainability reports.

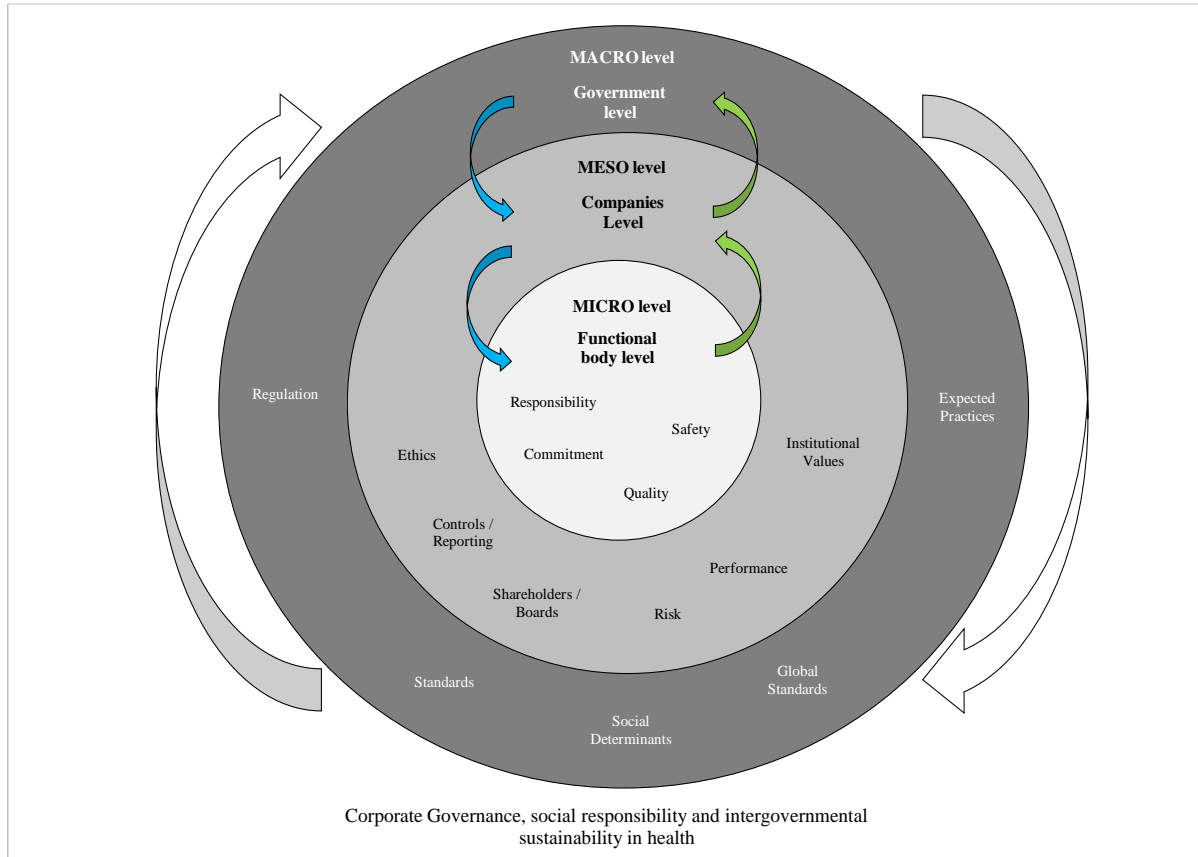


### 3.2. Corporate governance in health with the PRISMA analysis and focus on the environment

Articles were classified according to the main components focusing on the research methodology (Table 3) with quantitative analysis regarding: (1) the purpose of the study, (2) sources of information, (3) form of research, (4) data treatment, (5) data collection, (6) participants in the study, (7) type of study, (8) period of longitudinal studies, and (9)

environment. Figure 8 illustrates the different levels of the environment, according to the adapted definition of Bodolica (2019). The aspects of corporate governance, social responsibility and inter-governmental sustainability in health are the means covering the macro (governmental), meso (company level) and micro (level of the functional body) levels, influencing the interactions between them, in a systemic, continuous process.

Figure 8. Surrounding levels



From the meta-analysis, most studies are interpretative (45,51%), extracted from various documents, the form of research inductive and the collection of qualitative data appearing in 101 of the 167 studies, 83,23% are transversal studies and 16,77% longitudinal (67,86% over a period from 1 to 7 years). As for the environment, 50,9% of studies are carried out at the meso-level (companies), 6,59% at the micro-level (category of the functional body) and the remaining 42,51% at the macro-level (governmental), as presented in Table 3.

In order to summarise, the studies were identified and grouped according to their environmental setting (Appendix 1), leading to all articles being presented, by level, in Figure 9 and the annual distribution in Figure 10.

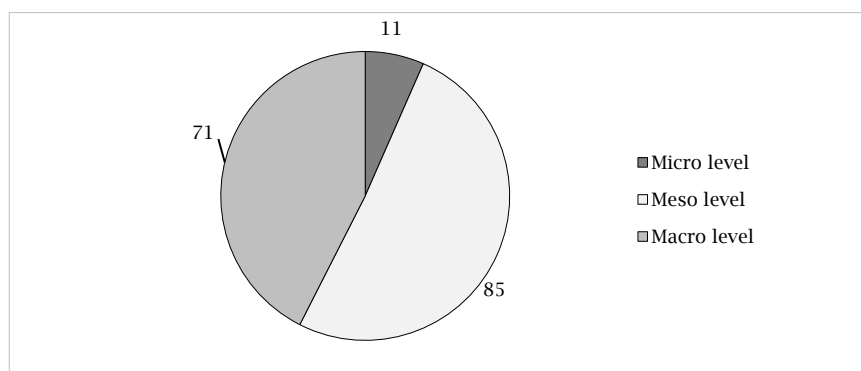
### 3.3. Analysis of keyword co-occurrence

The co-occurrence network showed four main lines of research being carried out (Figure 11). Visualizing the network reveals that each link has a strength, represented by a positive numerical value. The higher that value, the stronger the link, and in this case, indicating the number of publications in which two terms occur together (Table 4). After reading the studies where the keywords co-occurred most in each cluster, the nomenclature for these clusters was established, hereafter called attributes, which according to Zipf's law (Zipf, 1949) determine the central subject of a body of documents: (1) quality of healthcare, (2) corporate social responsibility in health, (3) risk management in health, and (4) global governance in health.

**Table 3.** PRISMA meta-analysis applied to the study, adapted from Liberati et al. (2009)

Component	Classification	Number of articles	Relative frequency (%)	Absolute frequency (%)
Purpose of the study	Exploratory	34	20,36	
	Descriptive	57	34,13	
	Interpretative	76	45,51	100
Information sources	Interviews	14	8,38	
	Interviews and various documents	25	14,97	
	Interviews and questionnaires	3	1,80	
	Various documents	70	41,92	
	Questionnaires	5	2,99	
	Databases (MEDLINE, PubMed, Web of Science, Proquest, EMBASE, EBSCO, PsycINFO, SCOPUS, others)	49	29,34	
	(Not applicable)	1	0,60	100
Form of research	Deductive	63	37,72	
	Inductive	104	62,28	100
Data treatment	Statistical methods (linear regression, structural equations, uni and multivariate analysis, means and standard deviation, Wilcoxon test)	49	29,34	
	Model Development	11	6,59	
	Qualitative content analysis and Nvivo	48	28,74	
	Various (gradual inductive approach, integration of topics and concepts based on analysis of categories, Delphi and Nominal group techniques, open and axial coding techniques, random grouping trial contrasted with launching in phases to assess the differential effectiveness of two conditions, Actor-Network Theory as an analytical lens)	59	35,33	100
Data collection	Quantitative	58	34,73	
	Mixed	8	4,79	
	Qualitative	101	60,48	100
Participants	Shareholders	1	0,60	
	Hospital CEO	2	1,20	
	Board and others (managers, doctors, industry, operational team)	24	14,37	
	Companies (pharmaceutical, biotechnology)	30	17,96	
	Hospital managers	7	4,19	
	Governments and others (CEOs, industries, hospitals, doctors, shareholders, community)	68	40,72	
	Hospital and others (industry, community, employees)	25	14,97	
	Doctors	3	1,80	
Type of study	Various (trade unions, insurers, risk committee, community)	7	4,19	100
	Transversal	139	83,23	
Period of research	Longitudinal	28	16,77	100
	From 1 to 7 years	19	67,86	
Environment	From 8 years or more	9	32,14	100
	Micro	11	6,59	
	Meso	85	50,90	
	Macro	71	42,51	100

**Figure 9.** Quantitative studies by level of the environment



**Figure 10.** Number of articles by environment level and year of publication

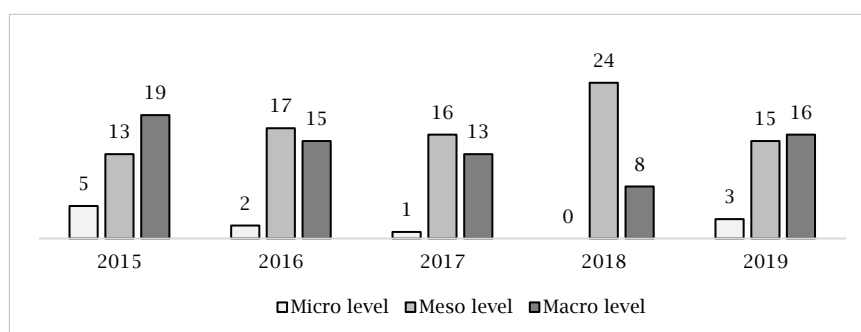


Figure 11. Keyword co-occurrence clusters taken from VOSviewer

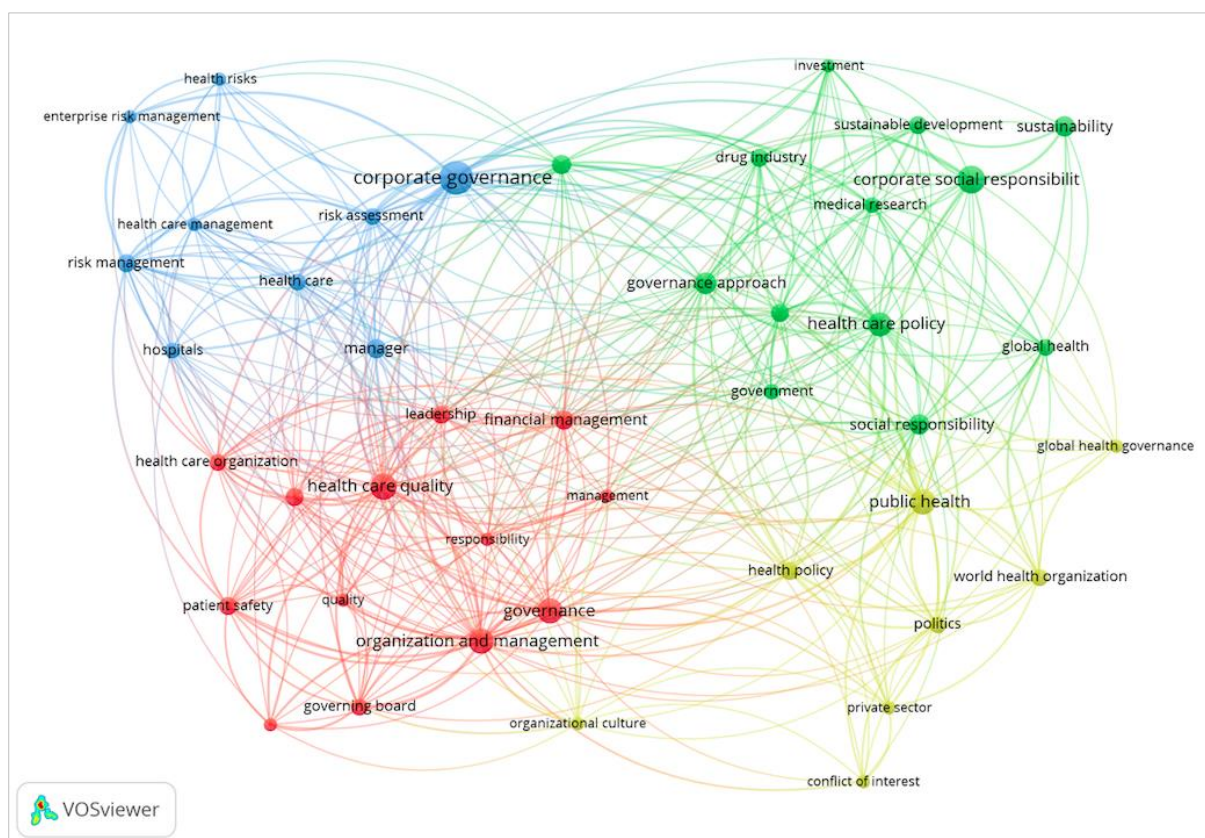


Table 4. The number of keywords co-occurrence and binding force (VOSviewer)

Cluster	Keywords	Bond strength	No of Occurrences
3	corporate governance	62	24
2	corporate social responsibility	35	16
1	healthcare quality	70	15
1	organization and management	67	14
1	governance	43	13
4	public health	58	13
2	healthcare policy	59	12
2	governance approach	42	10
2	social responsibility	34	9
2	sustainability	13	9
1	financial management	38	8
2	decision-making	35	8
3	manager	30	8
1	clinical governance	24	7
1	leadership	28	7
1	patient safety	33	7
2	drug industry	34	7
2	health promotion	36	7
2	sustainable development	18	7
3	risk management	35	7
4	health policy	39	7

#### 4. DISCUSSION

The main summaries are described below, distributed according to the identified attributes (VOSviewer) in the co-occurrence analysis of the keywords.

##### 4.1. “Quality of healthcare” attribute

In the “quality of healthcare” attribute (in red), containing thirteen nodes, those occurring most frequently are found to mention general patient

care, organisation, management, and safety. Appendix 2 shows the number of studies and authors/year dealing with the topic.

The importance and influence of the pharmaceutical industry are well-known, ultimately, in the quality of patient care as regards the development of medicine and therapies (Butler, 2016) since the aim is to launch a drug that has been tested and scientifically approved for consumption (Babiarz, Melaragni, Kerr, & Kuchimanchi, 2015; Knai et al., 2018). However, Roller (2019) points out the standards of transparency and responsibility of

pharmaceutical companies which have sometimes allocated larger budgets to marketing than to research (van Luijn, Gribnau, & Leufkens, 2010). The study by Brown (2019) contributes to the literature on governance by detailing processes by which corporate governance of health quality is adopted by boards and management, highlighting that work engagement is an important variable and can impact on how well governance of health quality is spread, and quality auditing should be understood as an effective mechanism to control processes (Kooli, 2019).

Therefore, the conceptual structure provided in the study by Pather and Mash (2019) illustrates the main stages in developing guidelines, contextualization, dissemination, implementation, and assessment, as well as the interconnections between stages and barriers or facilitators to the progress of practices based on evidence in health units (Sibindi & Aren, 2015).

The expression "Corporate Governance" refers to the concept of a system in which a company's shareholders "govern", that is, look after the company (Steinberg, 2003). Other definitions appear in the literature, such as those of a normative character referring to "institutional arrangements that govern relations between shareholders (or other groups) and company administrations" (Lethridge, 1997). Since then, various definitions have been used to conceptualize Governance, many with a more economic focus and currently focused on sustainability and social responsibility, and other definitions, arising from the former, have been incorporated in the literature, just as Clinical Governance.

Clinical Governance was first introduced in 1997 in the National Health Service (NHS) in the United Kingdom, representing a strategy of modernization and improvement of the quality of the health system (HSC, 1999). This is based on the Model of Excellence of the *European Foundation for Quality Management* (EFQM), guided by the principles of Total Quality and forming a reference to structure, assess and improve the quality of organisations (Roland & Backer, 1999; Allen, 2000), highlighting the fundamental principles of quality: results-oriented, customer-oriented, leadership and coherence of objectives, management of processes and activities, collaborators' development and involvement, learning, innovation, and continuous improvement, developing partnerships and social responsibility. The major contribution of the Clinical Governance model lay in bringing the clinical decision to the managerial and organisational context.

The effectiveness of corporate governance in hospitals can affect the fiscal stability of the health system, and indirectly, the health policy for the whole country (Pirozek, Komarkova, Leseticky, & Hajdikova, 2015). As regards clinical governance, focusing especially on hospital units, Williamson et al. (2015) underline the importance of an organisation's culture and say that clinical governance reflects corporate responsibility since processes should be analysed from the viewpoint of safety, assessments of clinical risk in order to form organisational learning. Hospitals continue to be very distinct organisations where clinical interests must be considered (Blanco-Oliver, Veronesi, &

Kirkpatrick, 2016) and doctors should develop the necessary competences for leadership, clinical and corporate governance (Mash, Blitz, Malan, & von Pressentin, 2016; Mazzone et al., 2015; Sheehan, Kavanagh, Asher, & Harbaugh, 2016), considering that ethical social responsibility among clinicians activates the share of knowledge (Tuan, 2016; Kwedza, Larkins, Johnson, & Zwar, 2017). Clinical managers have been encouraged to use multi-focused strategies and relation-oriented behaviour in an attempt to create a culture promoting health (Landstad, Hedlund, & Vinberg, 2017; Linwood et al., 2017). The governance of health providers can have a significant impact on the efficiency and effectiveness of the care provided by these organisations (Sheard et al., 2019).

Various studies have focused on the service to patients and how corporate governance in hospitals relates to them (Hossain et al., 2015a; Fooks et al., 2017; Oomkens, Hoogenboom, & Knijn, 2015; Cassels, 2016; Freeman, Millar, Mannion, & Davies, 2016; Ulijaszek & Mclellan, 2016; Wipfli, 2016; Ferguson et al., 2017) and to employees (Sheehan et al., 2016; Thanetsunthorn & Wuthisatian, 2017; Brown et al., 2018; Lee & Lai, 2018; Erwin et al., 2018), showing the need for effective mechanisms of corporate governance to sustain their operations and performance, eliminating factors that go against the institution's objectives (Afriyie et al., 2019a; Afriyie, Kong, Danso, Ibn Musah, & Akomeah, 2019b; Berland, 2019).

Another approach frequently adopted in research concerns administration boards and their contributions to governance activities (Sheaff, Endacott, Jones, & Woodward, 2015; Ferlie, Baeza, Addicott, & Mistry, 2016), their quantitative composition, regarding gender or academic background in the area of health (Bakalikwira et al., 2017; Chambers, Harvey, & Mannion, 2017; Kaur & Vij, 2017) and the independence and leverage connected to companies' performance (Bano, Tahir, Abbas, & Ansari, 2018; Kong et al., 2019).

#### 4.2. "Corporate social responsibility in health" attribute

Among the thirteen nodes grouped in the attribute of corporate social responsibility (CSR) (in green), the authors/year presented in Appendix 3 are highlighted. The keywords with the greatest co-occurrence are "CSR", "governance approach", "sustainability" and "care policy".

Howard Bowen was the first to define Corporate Social Responsibility (Carroll, 1979) and defined it as "business-people's obligations to follow those policies, make those decisions or follow the lines of action desirable in terms of the objectives and values of our society" (Carroll, 1979, p. 497; Hamidu, 2015, p. 84). Today, companies recognize that besides maximizing profit and value for their shareholders, they have a (social) responsibility to other stakeholders, such as their employees and customers, as well as society (Avi-Yonah, 2014), recognizing in corporate social responsibility (CSR) a mechanism of self-regulation (Kirat, 2015; Hossain, Alam, Islam, & Hecimovic, 2015a), by which firms carry out and communicate their business practices in a socially responsible, ethical and environmentally sustainable way (Camilleri, 2015; Hossain et al.,

2015a; Hossain, Hecimovic, & Choudhury Lema, 2015b; Islam, 2018).

However, cases of fraud and corruption in health services (Kalesnikoff, Kalagnanam, & Bruni-Bossio, 2015; Sample, 2015; Benmelech & Frydman, 2015; Elson & Gamble, 2016; do Nascimento Ferreira Barros et al., 2019), conflicts of interest between the corporate requirement to make a profit and ethical, responsible service (Herrick, 2016; Ntim, 2016; Molk, 2016; Rapaczynski, 2016; Geiger & Cuzzocrea, 2017; Dove, Collins, & Smith, 2018) and communication problems (Stavinoha, 2016; Misso & Andreopoulou, 2017; Carmenta et al., 2017; Clapp & Scrinis, 2017) have arisen, resulting in an unequal exchange between companies and the community (Simone, La Sala, & Baldassarra, 2018). These and other facts contribute to corporate actions remaining fragmented and leave wider questions of environmental and social justice unresolved (Cousins et al., 2019), with the urgent need for regulations with global coverage.

Sustainable organisations, including those operating in the field of health, have various actions that can in fact contribute to better performance (Nawaz & Koç, 2019) in sustainability (Rodriguez et al., 2018), such as optimizing resources and minimizing waste and emissions (Kumarasinghe, Will, & Hoshino, 2018; Liang et al., 2018), commercial and operational excellence (El-Kassar, ElGammal, & Fahed-Sreih, 2018; Jarernsripornkul & Pandey, 2018; Vveinhardt, Stonkutė, & Sroka, 2019), corporate citizenship and social development (Chang, Wang, & Wang, 2018; Feng & Johansson, 2018), research and innovation (Lee, 2015; Hepworth, 2019; Steele, Ruskin, Sarcevic, McKee, & Stuckler, 2019), purchasing, supply chain and logistics (Edgeman et al., 2016), governance (Monachino & Moreira, 2016; Kasim & Karim, 2017; Thorsteinsdóttir, Ovtcharenko, & Kohler, 2017; Laouer, 2018), tools to manage sustainability (Siew, 2017; Shabbir et al., 2018; Lee, 2019; Petitjean, 2019) relations with employees (Tuan, 2015; Holland, 2017; Flammer & Luo, 2017; Knippen, Palar, & Gentry, 2018; Lee, 2019) and health, well-being, safety and protection (Khan, Lew, & Park, 2015; Camilleri, 2017; Bump, 2018; Marstein & Babich, 2018; Sharmin, Khan, & Belal, 2018; Mehta, Raj, & Solanki, 2019).

Lock and Seele (2016) argue that institutions have the responsibility to help to solve global public problems, and Russo (2016) states that a responsible organisation must assess the effects of its actions and therefore adopt a monitoring system able to measure its result, although only with greater government intervention can sustainability advance from small steps to major ones (UN, 2013).

### 4.3. "Risk management in health" attribute

The third attribute, risk management in health (in blue) joins nine keywords (the most cited ones are "risk management", "health risks" and "risk assessment"), with the authors/year and number of studies being presented in Appendix 4. Although institutional monitoring is important for a company regarding specific corporate events, it is a continuous effort and so should be observable at any time (Chung et al., 2015). Rather than trying to avoid all possible damage, risk-based approaches only seek to limit those that exceed acceptable levels

of risk, as determined through formal assessment of probability and consequences (OECD, 2010). To this end, principles and policy instruments based on risk can be used to focus not only on the objectives of regulation but also on related inspection and application practices regarding priority risks (Demeritt et al., 2015; Rossi et al., 2015).

Discussing the characteristics of an integrated approach to governance (clinical and corporate) and its contribution to improved health service provision, Delaney (2015) finds the greater understanding of health strategies and organisational objectives and their spread throughout the organisation. The definition of risk found here is broad and observed in different contexts, such as behaviour and ethics (Kesselheim, Sinha, & Joffe, 2015; Mais & Sari, 2015; Hasan, Ayuningtyas, & Misnaniarti, 2016), risk in the quality of the source for gathering managerial data and information (McNulty & Akhigbe, 2015; Aragón Amonarriz & Iturrioz Landart, 2016) to maintain good internal control, clinical risk associated with patient safety (Sendlhofer et al., 2015; van Schalkwyk & Steenkamp, 2015; Ho, Lee, Lam, & Tang, 2017), risk of implementing bad regulatory policies with doubtful benefits for society (Cumming, Henriques, & Sadorsky, 2016; Vainieri, Gallo, Montagano, & Nuti, 2016), affecting institutions' financial performance (Kuntz, Pulm, & Wittland, 2016; Ngo, Duong, & Chen, 2016; Stathopoulos & Voulgaris, 2016; Ch & Jola, 2017) and the volatility of the return on companies' actions (Jizi & Nehme, 2017), as well as risks associated with organisation's decision-making on investments and agency costs due to retaining information (Ouyang & Hilsenrath, 2017; Shan, Razak, & Ali, 2018; Thaiyalnayaki & Reddy, 2018; Hsu, Clarkson, & Ouyang, 2019).

On the other hand, multi-directed efforts have aimed to minimize those risks through stricter, more accurate, internal organisational controls (Ames et al., 2018; Thompson, 2018), setting up committees or internal auditors to act in risk management (Mais & Sari, 2015; Aragón Amonarriz & Iturrioz Landart, 2016; Etges et al., 2018; Mustafa & Al-Nimer, 2018; Nazir, M. S., Nazir, S., & Javaid, 2018), implementing new forms of governance regulation for greater control, use of knowledge and corporate responsibility (van Erp, 2017; Carter et al., 2019; Ishikawa, Murata, & Kawaguchi, 2019; Lai, Panfilo, & Stacchezzini, 2019) having in common means to achieve principles with value-oriented results (Etges, de Souza, Kliemann Neto, & Felix, 2019a; Waring, 2019).

### 4.4. "Global governance in health" attribute

Global governance in health, attribute 4, (in yellow), grouped 8 nodes. Appendix 5 presents the authors/year involved in this topic, where the most common expressions are "health policy", "conflict of interest" and "global governance in health".

A growing amount of literature deals with how neo-liberalism affects the discourse and practice of public health (Torrado, 2016) and how place influences health due to socio-environmental causes (Fry & Brannstrom, 2017; Liang et al., 2018) which are unhealthy for employees (Foladori, 2017). For Banasik (2015), strengthening health systems and governance is crucial to meet expectations of

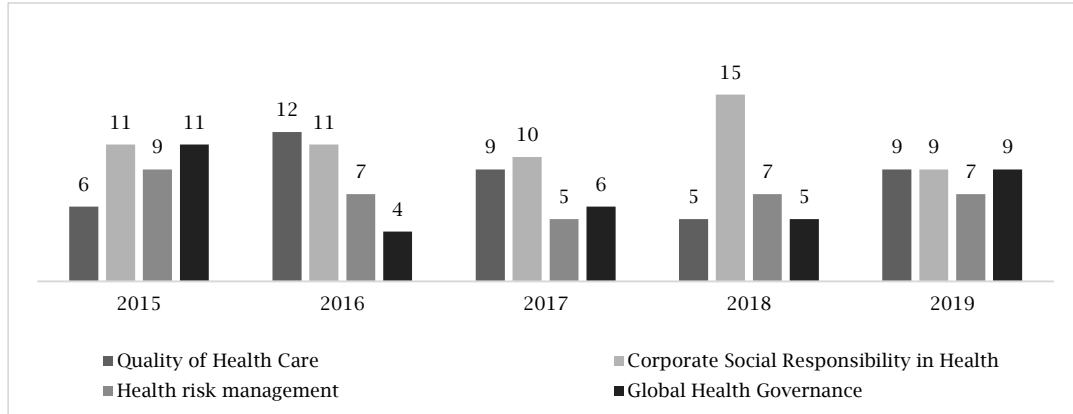
effective, efficient, equitable healthcare provision, which requires the implementation of significant reforms in the field (Carter, 2015; Rawlinson, 2017; Slade et al., 2017; Gonenc & Scholtens, 2019).

Whitmee et al. (2015) state that the objectives of sustainable development provide a great opportunity to integrate health and sustainability through the selection of important indicators for human well-being, the infrastructure to favour development and natural support systems, together with the need for strong governance. In this context, research on a sustainable way to exploit natural resources becomes necessary (Krimsky, 2015; Nelson, 2015; Russell, Wainwright, & Mamudu, 2015; Lee et al., 2016; Lipunga, Tchereni, & Bakuwa, 2019) as well as on good corporate governance practices (Sibindi & Aren, 2015; Leon & Ken, 2017; Morantz, 2017; Bugbee, 2019). Governance and regulation are inter-related, since regulation moulds governance and is modelled simultaneously by changes in the meaning of governance, and the emphasis on health does not only affect the responsibilities of hospital directors but also changes the work of state regulators, responsible for supervising the quality of service because they need to ensure that the organisation's governance comes up to standard (Stoopendaal & van de Bovenkamp, 2015). Governance is about the responsibilities of various actors operating at different levels: professionals at the micro-level, boards of administration and supervisory councils at the meso-level; and government regulators at the macro-level (van de

Bovenkamp, de Mul, Quartz, Weggelaar-Jancen, & Bal, 2013; Weir et al., 2015; MacKenzie, Lee, & LeGresley, 2016), who should observe ethical and social implications (Woolley et al., 2016; Fry & Brannstrom, 2017; Pulker, Trapp, Scott, & Pollard, 2018).

Common social objectives should be prioritized, economic growth should become a means that allows these objectives to be achieved, rather than an end in itself (Delany et al., 2018). Commercial and investment agreements, as well as international standards and regulations (Esty & Bell, 2018; Shukla, 2018) should consider health, social and environmental objectives that are the results of good corporate governance, leadership and ethical values (Pronk, Malan, Christie, Hajat, & Yach, 2018; Brems & McCoy, 2019; Kumar & Firoz, 2019) and should not give way to a variety of strategies to promote organisational interests associated with an apparently paradoxical business model (Faulk, Willems, McGinnis Johnson, & Stewart, 2015; Leon & Ken, 2019). Murphy-Gregory and Gale (2019) propose using meta-governance, where various organisations in global schemes of governance become mutually responsible for the results obtained from agreements and regulations in the field of health (Ellwood & Garcia-Lacalle, 2015; Quak, Heilbron, & Meijer, 2019), emerging questions that should also involve the governance of citizens (Shepherd et al., 2019). A summary of the studies, by year of publication and attribute, appears in Figure 12.

Figure 12. Quantitative studies by attribute and by year



#### 4.5. Grounded theory and the Conceptual Model

Grounded theory is a qualitative research style that seeks to create new theories through some basic elements: concepts, categories, and properties. The creation and development of these elements take place through an interactive process, i.e., they are not generated a priori and subsequently tested. The emphasis of Grounded theory is on learning from data and not from an existing theoretical vision (Strauss & Corbin, 1990). Once researchers reach the theoretical saturation of categories, they go on to review, classify and integrate the numerous memos related to the categories, their properties and the relations between them. This procedure is called sorting and is essential since it places fragmented data together. The classified memos create a

conceptual framework with the main ideas and facts about what is being studied. Therefore, the writing phase is simply a product of the sorting procedure.

Glaser (2001) describes Grounded theory as “paradigmatically neutral”, suitable for use in positivist, interpretivist or critical studies (Annells, 2016; Urquhart, 2001). Setting out from Pandit (1996), who defines the process of constructing Grounded theory, the research was designed (literature review and selection of cases), data were gathered (protocol development), ordered (categories) and analysed. Based on the main approaches found in the studies analysed, the concepts emerge and are organised in topics that originate the attributes and concepts to the properties, establishing the relationship between them (Petrini & Pozzebon, 2009). Although performance is a very important subject in

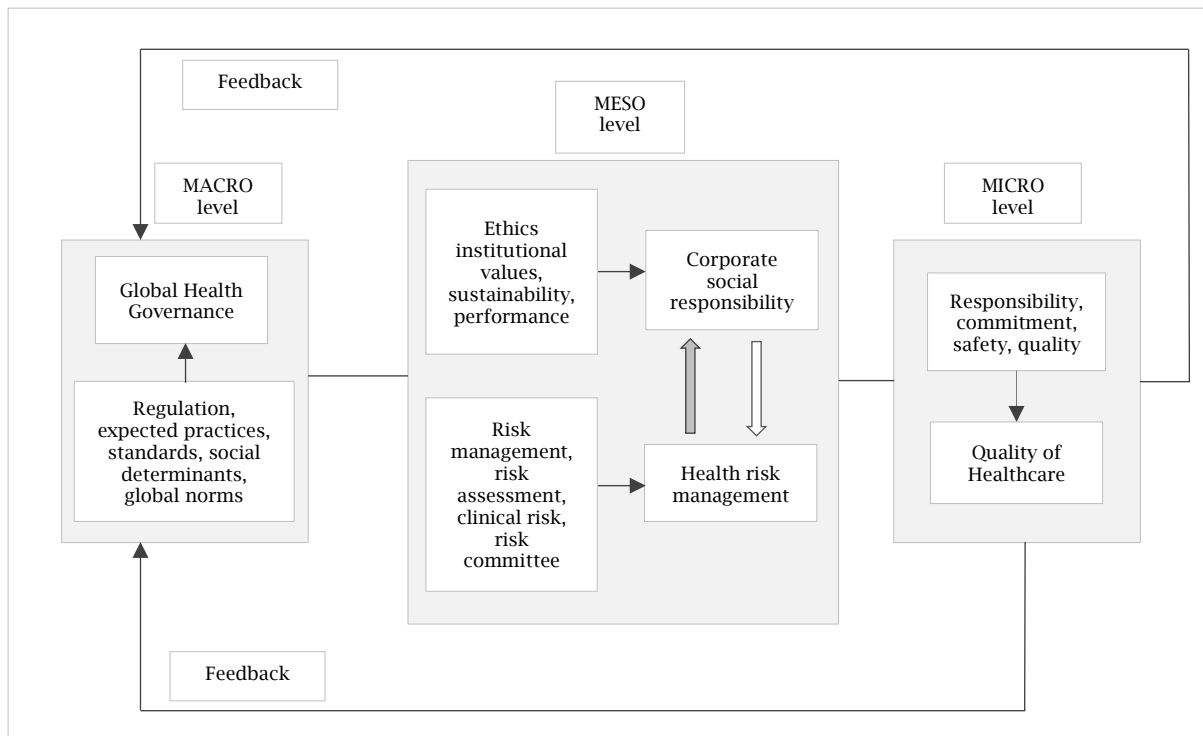
managing health service systems (Marchal et al., 2014), from the attempts by the WHO (WHO, 2000) and OPAS (OPAS, 2001) to encourage the development of systems to manage performance and the adoption of a model of management by results, few studies have described the theoretical model to assess governance and interventions in health. The term is often used as a synonym of quality, effectiveness or efficiency, which alone cannot represent the whole range of questions covered (Brousselle, Champagne, Contandriopoulos, & Hartz, 2011), and are not enough to promote the development of interventions in health. So there is an important gap in scientific knowledge on the subject, with significant reflections in assessment practices (Carnut & Narvai, 2016).

In this context, Figure 13 presents the conceptual model emerging from the SLR, from the application of Grounded theory, underlining the importance of observing the environment the main aspects of corporate governance in health are part of. Notably, global governance in health, in the

macrosphere of the environment, should issue the regulations, policies, standards and social determinants that will influence, at the meso-level, health institutions, which in turn also have an influence on the quality of service provided to the patient (micro-level). This cycle is repeated, with a view to strengthening the whole system that involves the dimensions of leadership, evidence-based practices, and sustainability.

This model shows the learning in the double loop which, caused by reviewing the guiding principles, includes reviewing the process and finally generating a kind of result for the system. Here, this includes the question of reviewing principles, norms, policies and macro objectives, forming action and its transformation into organisational results, culminating in reflecting on those actions to deal with patients. "The double loop refers to the two circuits of feedback that connect observed effects of the action with strategies and values served by the strategies" (Argyris & Schön, 1978, p. 21).

Figure 13. Conceptual model of corporate governance in health



## 5. CONCLUSION

Governance of the health system involves supervision and orientation of the system as a whole, not just the public system, in order to safeguard the population's interests (WHO, 2014), and includes the actions and means adopted by society to organise improvement and protection of the population's health (Mutale, Mwanamwenge, Balabanova, Spicer, & Ayles, 2013). Hospitals are special institutions (Hunter, 2014) with their own form of organisational governance, and this particularity presents some resources that need special emphasis. However, the health sector covers various types of institutions, such as care at home,

out-patient service, and others. Both the governance and regulation of this sector are evolving and boards and regulators in the field of health try to find ways to gain control of service quality through integrated risk-management systems that can be used to ensure quality and safety in a pro-active way (Stoopendaal & van de Bovenkamp, 2015). Global health has moved from a focus on technical competences to a more politicized vision of the relations between a growing number of stakeholders (Akhlaq et al., 2020; Beier & Früh, 2020; Byham-Gray, Peters, & Rothpletz-Puglia, 2020; O'Hara, Baxter, & Hardicre, 2020).

This study makes important observations after including the different topics in the levels of the



environment, allowing a survey of attributes influencing corporate governance in health. Setting out from the micro-level, where the quality of healthcare is influenced by factors such as the pharmaceutical industry's stance and its own scenario of corporate social responsibility, including clinical governance and the emerging need for corporate education for medical staff, as well as the influence of boards of administration indicating responsibility and commitment to safe healthcare of quality and for the patient.

Regarding health institutions (meso), corporate social responsibility (CSR) and risk management in health stand out. Studies on CSR show researchers' concern about socially responsible, ethical and environmentally sustainable business practices, and how organisations take responsibility for the effects of their actions, either directly or through state-monitored regulation. Increasingly, risk management in health moulds the behaviour of organisations which come under pressure from users who demand better health services. This study addresses risks in different aspects, including those associated with behaviour and ethics, risk in the quality of sources of data and information for management, to keep good internal control of processes, the clinical risk associated with patient safety, the risk of implementing bad regulatory policies with doubtful benefits for society, those affecting institutions' financial performance and risks associated with organisational decision-making about investments and agency costs.

In global governance in health, at the macro-level, national and international governance and regulations stand out, addressing sustainable ways to exploit resources, minimizing conflicts between stakeholders, since global health has moved from a focus on technical competences to a more politicized vision between the growing number of stakeholders and where health, social and environmental objectives, the results of good corporate governance, leadership and ethical values, do not give way to strategies promoting only organisational interests.

The results of the study and development of the theoretical model are found to be consistent and able to show the main contribution to the interpretation of risk management, quality and the

responsibility of corporate governance, the state's role in regulations and the ultimate effect on healthcare performance, where the evidence indicates the need not only for regulation but for implementation and monitoring. In this context, it is important to study the environment in health since the prevalence of certain patterns of actions taken by political leaders, which culminate in health regulations, comes from the socio-cultural and economic conditions where investigations are conducted, as well as from networks, interconnections in certain communities, institutions seem to facilitate accessibility, opportunities for improving the quality of patient care, making it essential to study these aspects, with the need to pay special attention from the point of view of the definition of public health policies.

This article contributes to the literature on structure and interactions in the different spheres, levels of the health environment and their impact on patient care. At the policy level, it includes the perspective of the influence of public policies on the results, ultimately, inpatient care. However, this document goes beyond the research and also considers the intention of the structure proposed in the conceptual model, which seeks greater transparency and information exchange between all those involved when forming health policies to allow comparison between the desired health results and perception of the results actually achieved.

Although this study brings current references on governance and regulatory aspects in health, an identified limitation refers to the period analysed (5 years), as this can be extended, thus allowing for greater coverage in the determination of clusters and a more of the determinants that influence health regulations, both at the macro (governmental), meso (institutions) and micro (patient care units) levels, providing indicators that provide greater sustainability and expand the social responsibility of national health systems. Table 5 proposes an agenda for the future, separate studies according to the attributes found in the SLR. A limitation of this study concerns the fact of analysing studies published in the last five years since the focus was on obtaining current references on the subject developed.

**Table 5.** Suggestions for future research

<i>Attribute</i>	<i>Suggestions for future research</i>
Quality of healthcare	<ul style="list-style-type: none"> <li>- Deepen the discourse on governance in health systems interacting with the challenges of an aging population.</li> <li>- Explore managerial perceptions of corporate governance issues which are still under-researched (example: what is the understanding and commitment of mid-level medical managers to the implementation of evidence-based clinical protocols).</li> <li>- Extend the literature on service quality focusing not only on hospitals but covering health centres, clinics and outpatient departments.</li> </ul>
Corporate social responsibility in health	<ul style="list-style-type: none"> <li>- Promote studies establishing a relationship between sustainability and corporate responsibility with the main stakeholders, including regulatory bodies, in order to address social, environmental, governance and economic deficits (example: developing holistic tools for managing organizational sustainability, based on the best practices of recognized sustainable organizations).</li> </ul>
Risk management in health	<ul style="list-style-type: none"> <li>- Studies addressing complex and mutual organisational characteristics with organisational performance in an attempt to minimize different types of risk (example: like internal controls, effective tools to prevent losses and achieve organizational goals can sustain operations and improve the performance of hospital institutions).</li> <li>- Address social and environmental factors of health problems affecting society (example: analysing the social responsibility activities of health institutions in order to find out if companies add value to the quality of healthcare and society).</li> </ul>
Global governance in health	<ul style="list-style-type: none"> <li>- Develop an integrated approach to corporate governance strategies in multinational companies, incorporating regulatory, economic and socio-cultural perspectives, as well as the perspectives of the different stakeholders.</li> <li>- Provide policy advice about the corrective and preventive actions necessary to protect the health sector.</li> </ul>



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## APPENDIX 1

**Table A1.** Summary of articles according to the category of environment and authors according to year of publication

Level	Nº articles	Author/Year of publication
Micro	11	Delaney (2015), Hossain et al. (2015b), Sendthofer et al. (2015), Oomkens et al. (2015), Tuan (2015), Varhegyi & Jepsen (2016), Tuan (2016), Kwedza et al. (2017), Brown (2019), Hsu et al. (2019), Lee (2019).
Meso	85	Sibindi & Aren (2015), Hossain et al. (2015a), Lee (2015), Babiarz et al. (2015), Benmelech & Frydman (2015), Faulk et al. (2015), Williamson et al. (2015), Mais & Sari (2015), Ellwood & Garcia-Lacalle (2015), Rossi et al. (2015), Chung et al. (2015), Khan et al. (2015), Sheaff et al. (2015), Kuntz et al. (2016), Cassels (2016), Edgeman et al. (2016), Aragón & Iturrioz Landart (2016), Elson & Gamble (2016), Molk (2016), Ngo et al. (2016), Rapaczynski (2016), Hasan et al. (2016), Blanco-Oliver et al. (2016), Freeman et al. (2016), Stathopoulos & Voulgaris (2016), Butler (2016), Mazzone et al. (2016), Russo (2016), Lock & Seele (2016), Linwood et al. (2017), Ho et al. (2017), Flammer & Luo (2017), Holland (2017), Ouyang & Hilsenrath (2017), van Erp (2017), Kaur & Vij (2017), Ch & Jola (2017), Misso & Andreopoulou (2017), Siew (2017), Clapp & Scrinis (2017), Thanetsunthorn & Wuthisatian (2017), Geiger & Cuzzocrea (2017), Landstad et al. (2017), Chambers et al. (2017), Jizi & Nehme (2017), Brown et al. (2018), Liang et al. (2018), Chang et al. (2018), Feng & Johansson (2018), Lee & Lai (2018), Rodriguez et al. (2018), Ames et al. (2018), Erwin et al. (2018), Knippen et al. (2018), Pronk et al. (2018), Thompson (2018), da Silva Etges et al. (2018), Laouer (2018), Thaiyalnayaki & Reddy (2018), Simone et al. (2018), Kumarasinghe et al. (2018), Mustafa & Al-Nimer (2018), El-Kassar et al. (2018), Shan et al. (2018), Pulker et al. (2018), Bano et al. (2018), Nazir et al. (2018), Shabbir et al. (2018), Jarernsripornkul & Pandey (2018), Pather & Mash (2019), Etges et al. (2019b), Afriyie et al. (2019b), Kong et al. (2019), Petitjean (2019), Kumar & Firoz (2019), Mehta et al. (2019), Hepworth (2019), Nawaz & Koç (2019), Quak et al. (2019), Sheard et al. (2019), Kooli (2019), Carter et al. (2019).
Macro	71	Pirozek et al. (2015), van Schalkwyk & Steenkamp (2015), Banasik (2015), Hossain et al. (2015c), Kalesnikoff et al. (2015), Kirat (2015), Carter (2015), Kesselheim et al. (2015), Krinsky (2015), McNulty & Akhigbe (2015), Nelson (2015), Sample (2015), Stoopendaal & van de Bovenkamp (2015), Trexler & Schendler (2015), Whitmee et al. (2015), Camilleri (2015), Demeritt et al. (2015), Weir et al. (2015), Russell et al. (2015), Fooks et al. (2017), Herrick (2016), Mash et al. (2016), Ntim (2016), Torrado (2016), MacKenzie et al. (2016), Sheehan et al. (2016), Woolley et al. (2016), Ferlie et al. (2016), Vainieri et al. (2016), Lee et al. (2016), Wipfli (2016), Cumming et al. (2016), Stavinoha (2016), Monachino & Moreira (2016), Ulijaszek & McLennan (2016), Rawlinson (2017), Kasim & Karim (2017), Thorsteinsdóttir et al. (2017), Camilleri (2017), Fry & Brannstrom (2017), Leon & Ken (2017), Slade et al. (2017), Carmenta et al. (2017), Ferguson et al. (2017), Morantz (2017), Foladori (2017), Bakalikwira et al. (2017), Shukla (2018), Sharmin et al. (2018), Dove et al. (2018), Esty & Bell (2018), Bump (2018), Delany et al. (2018), Knai et al. (2018), Marstein & Babich (2018), do Nascimento Ferreira Barros et al. (2019), Berland (2019), Brems & McCoy (2019), Bugbee (2019), Cousins et al. (2019), Leon & Ken (2019), Steele et al. (2019), Shepherd et al. (2019), Lai et al. (2019), Ishikawa et al. (2019), Vveinhardt et al. (2019), Murphy-Gregory & Gale (2019), Roller, 2019, Gonenc & Scholtens (2019), Waring (2019), Lipunga et al. (2019).

## APPENDIX 2

**Table A2.** Summary of authors/year involved in the “quality of health care” attribute

Attribute	Nº articles	Author/Year of publication
Quality of Healthcare	41	Babiarz et al. (2015), Hossain et al. (2015b), Oomkens et al. (2015), Pirozek et al. (2015), Sheaff et al. (2015), Williamson et al. (2015), Blanco-Oliver et al. (2016), Butler (2016), Cassels (2016), Ferlie et al. (2016), Freeman et al. (2016), Mash et al. (2016), Mazzone et al. (2016), Sheehan et al. (2016), Tuan (2016), Ulijaszek & McLennan (2016), Wipfli (2016), Bakalikwira et al. (2017), Chambers et al. (2017), Ferguson et al. (2017), Fooks et al. (2015), Kaur & Vij (2017), Kwedza et al. (2017), Landstad et al. (2017), Linwood et al. (2017), Thanetsunthorn & Wuthisatian (2017), Bano et al. (2018), Brown et al. (2018), Erwin et al. (2018), Knai et al. (2018), Lee & Lai (2018), Afriyie et al. (2019a), Afriyie et al. (2019b), Berland (2019), Brown (2019), Kong et al. (2019), Kooli (2019), Pather & Mash (2019), Roller (2019), Sheard et al. (2019).

## APPENDIX 3

Table A3. Summary of authors/year involved in the “corporate social responsibility in health” attribute

<i>Attribute</i>	<i>Nº articles</i>	<i>Author/Year of publication</i>
Corporate Social Responsibility in Health	56	Benmelech & Frydman (2015), Camilleri (2015), Kirat (2015), Hossain et al. (2015a), Hossain et al. (2015c), Kalesnikoff et al. (2015), Khan et al. (2015), Lee (2015), Sample (2015), Trexler & Schendler (2015), Tuan (2015), Edgeman et al. (2016), Elson & Gamble (2016), Herrick (2016), Ntim (2016), Lock & Seele (2016), Molk (2016), Monachino & Moreira (2016), Rapaczynski (2016), Russo (2016), Stavinoha (2016), Varhegyi & Jepsen (2016), Camilleri (2017), Geiger & Cuzzocrea (2017), Holland (2017), Kasim & Karim (2017), Misso & Andreopoulou (2017), Carmenta et al. (2017), Siew (2017), Thorsteinsdóttir et al. (2017), Clapp & Scrinis (2017), Flammer & Luo (2017), Bump (2018), Chang et al. (2018), Dove et al. (2018), El-Kassar et al. (2018), Feng & Johansson (2018), Jarernsripornkul & Pandey (2018), Knippen et al. (2018), Kumarasinghe et al. (2018), Laouer (2018), Liang et al. (2018), Marstein & Babich (2018), Rodriguez et al. (2018), Shabbir et al. (2018), Sharmin et al. (2018), Simone et al. (2018), Cousins et al. (2019), do Nascimento Ferreira Barros et al. (2019), Hepworth (2019), Lee (2019), Mehta et al. (2019), Nawaz & Koç (2019), Petitjean (2019), Steele et al. (2019), Vveinhardt et al. (2019).

## APPENDIX 4

Table A4. Summary of authors/year involved in the “health risk management” attribute

<i>Attribute</i>	<i>Nº articles</i>	<i>Author/Year of publication</i>
Health Risk Management	35	Chung et al. (2015), Demeritt et al. (2015), Delaney (2015), Rossi et al. (2015), Kesselheim et al. (2015), Mais & Sari (2015), McNulty & Akhigbe (2015), Sendlhofer et al. (2015), van Schalkwyk & Steenkamp (2015), Aragón & Iturrioz Landart (2016), Cumming et al. (2016), Hasan et al. (2016), Kuntz et al. (2016), Ngo et al. (2016), Stathopoulos & Voulgaris (2016), Vainieri et al. (2016), Ch & Jola (2017), Ho et al. (2017), Jizi & Nehme (2017), Ouyang & Hilsenrath (2017), van Erp (2017), Ames et al. (2018), da Silva Etges et al. (2018), Mustafa & Al-Nimer (2018), Nazir et al. (2018), Shan et al. (2018), Thaiyalnayaki & Reddy (2018), Thompson (2018), Carter et al. (2019), Etges et al. (2019a), Etges et al. (2019b), Hsu et al. (2019), Ishikawa et al. (2019), Lai et al. (2019), Waring (2019).

## APPENDIX 5

Table A5. Summary of authors/year involved in the “global governance in health” attribute

<i>Attribute</i>	<i>Nº articles</i>	<i>Author/Year of publication</i>
Global Health Governance	35	Banasik (2015), Carter (2015), Ellwood & Garcia-Lacalle (2015), Faulk et al. (2015), Whitmee et al. (2015), Krinsky (2015), Nelson (2015), Russell et al. (2015), Sibindi & Aren (2015), Stoopendaal & van de Bovenkamp (2015), Weir et al. (2015), Lee et al. (2016), MacKenzie et al. (2016), Woolley et al. (2016), Torrado (2016), Foladori (2017), Fry & Brannstrom (2017), Leon & Ken (2017), Morantz (2017), Rawlinson (2017), Slade et al. (2017), Delany et al. (2018), Esty & Bell (2018), Pronk et al. (2018), Pulker et al. (2018), Shukla (2018), Brems & McCoy (2019), Bugbee (2019), Gonenc & Scholtens (2019), Kumar & Firoz (2019), Leon & Ken (2019), Lipunga et al. (2019), Murphy-Gregory & Gale (2019), Quak et al. (2019), Shepherd et al. (2019).