

Scoping and Bibliometric Analysis of Promoters of Therapeutic Inertia in Hypertension

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Evidence-based standards in caring for patients with certain disease conditions are receiving more attention in modern health care delivery.¹ Evidence-based practices are often reported as guidelines intended to inform health care providers and ensure optimal care delivery.^{2,3} In modern practices, clinicians are increasingly required to individualize care plans for certain patients after taking into consideration the need for initiating, modifying, intensifying, or discontinuing therapy and/or referring patients to another appropriately recommended intervention.⁴⁻⁶ However, devising individualized therapeutic care plans in adherence to current evidence-based recommendations can be challenging.

Although recent advancements in evidence-based standards and the availability of current guidelines have promoted optimizing therapeutic care plans, many patients still fail to attain certain intended therapeutic goals. Many factors could contribute to this failure. However, a phenomenon known as “therapeutic inertia” has been considered as the main contributor.^{7,8} Therapeutic inertia refers to a phenomenon in which a clinician fails to manage at least 1 condition due to lack of adequate intervention.⁷ In scholarly literature, the terms *therapeutic inertia*, *clinical inertia*, and *physician inertia* are used synonymously in contrast with *therapeutic momentum*.

The existence of therapeutic inertia in managing chronic diseases for which treatment algorithms and therapeutic goals are well established, such as diabetes, hypertension, hyperlipidemia, osteoporosis, arthritis, and gout, is evident in the results of epidemiological studies from various health care systems.^{7,9-13} Although the burden of therapeutic inertia is still highly debatable,¹⁴ the phenomenon of therapeutic inertia is thought to be responsible for up to 80% of cardiovascular events.^{15,16} Therefore, it has been argued that eliminating therapeutic inertia is a prerequisite for improving health care delivery and patient outcomes.¹⁷

Hypertension is among the most frequently managed health problems in general practice.¹⁸ According to some estimates, more than 1.38 billion individuals around the world have hypertension as defined by systolic blood pressure of 140 mm Hg or higher and/or diastolic blood pressure of 90 mm Hg or higher.¹⁹ The global prevalence rate among adults has been estimated at 31.1%.¹⁹

ABSTRACT

OBJECTIVES: Therapeutic/clinical inertia is thought to be responsible for up to 80% of cardiovascular events. This study was conducted as a comprehensive scoping and bibliometric analysis of peer-reviewed scholarly documents reporting on factors associated with therapeutic/clinical inertia in caring for patients with hypertension. Additionally, this study identified the factors associated with therapeutic/clinical inertia in hypertension.

STUDY DESIGN: This study was a scoping and bibliometric analysis.

METHODS: The databases MEDLINE/PubMed, Embase, CINAHL/EBSCO, Cochrane, and Scopus were searched from inception to September 23, 2020, using relevant keywords. Documents reporting on factors associated with therapeutic/clinical inertia in caring for patients with hypertension were selected based on inclusion criteria. Bibliometric indicators and VOSviewer were used to analyze and map citation and keyword networks.

RESULTS: Data were collected from 71 documents. Of those, 43 (60.6%) were original articles, 54 (76.1%) were published after 2010, and 41 (57.7%) originated from the United States. Mapping cooccurrence of terms identified 112 hot topics that were grouped into 4 clusters. A total of 41 factors associated with therapeutic/clinical inertia were identified from the documents selected. Of those, 23 (56.1%) were related to the physician, 12 (29.3%) were related to the patient, and 6 (14.6%) were related to the health care system.

CONCLUSIONS: This scoping and bibliometric study provides insights into the width and depth of scholarly peer-reviewed documents on factors associated with therapeutic/clinical inertia in caring for patients with hypertension. Findings of this study could be helpful in shaping future directions of research into therapeutic/clinical inertia in hypertension.

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Unmanaged elevated blood pressure can lead to greater disease burden and mortality.²⁰ Studies have shown that attaining optimal control of elevated blood pressure was difficult in different health care systems.^{1,9,21,22} Additionally, initiation and intensification of antihypertensive therapy to achieve therapeutic goals in patients with hypertension were identified as gaps in evidence-based practice.^{1,9,14,23} Despite the availability of evidence-based guidelines, designing individualized care plans for patients with hypertension could be jeopardized by factors related to the physician, patient, and/or health care system.^{4,5,17,24-30}

In a recent systematic review and meta-analysis, Milman et al analyzed randomized controlled trials to investigate whether interventions that aimed to reduce therapeutic inertia relevant to antihypertensive pharmacotherapy improved control of blood pressure in patients with hypertension.³¹ The study results showed that reminders, ambulatory monitors, and educational interventions improved control of blood pressure. In another integrative review, Aujoulat et al addressed the factors associated with therapeutic inertia in general.³² The review sought to address factors that were generally associated with physicians' inaction to better understand the phenomenon of therapeutic inertia. Lebeau et al conducted a qualitative systematic review using major databases.³³ The study focused on collecting and appraising definitions of therapeutic inertia in hypertension as a concept in a trial to form an operational definition.

Despite the importance of therapeutic inertia in hypertension that was articulated in many previous works, little has been published on factors associated with therapeutic inertia in caring for patients with hypertension. Additionally, bibliometric analysis of peer-reviewed scholarly documents reporting on factors associated with therapeutic inertia in caring for patients with hypertension has not previously been performed. Bibliometric analysis has emerged as an appealing statistical tool in facilitating the presentation of peer-reviewed scholarly documents published as scientific literature.³⁴ On the other hand, the scoping approach to literature has emerged as a useful tool to determine the coverage of literature on a particular topic, provide a clear indication of the volume of scholarly documents on that topic, identify the types of documents and evidence available on the topic, identify the key concepts/definitions within the scope of the topic, examine how studies are conducted on the topic, identify the factors associated with the topic, serve as a precursor to systematic reviews on that topic, and identify knowledge gaps in that field.^{35,36}

Therefore, this study was conducted as a comprehensive scoping and bibliometric analysis of peer-reviewed scholarly documents reporting on factors associated with therapeutic inertia in caring for patients with hypertension. In this study, the bibliometric analysis was conducted to analyze global scholarly production on factors associated with therapeutic/clinical inertia in caring for patients,

TAKEAWAY POINTS

Scholarly peer-reviewed articles reporting on factors associated with therapeutic inertia in caring for patients with hypertension were analyzed using scoping and bibliometric methods.

- ▶ Therapeutic inertia is thought to be responsible for up to 80% of cardiovascular events.
- ▶ Therapeutic inertia is associated with factors related to the physician, patient, and health care system.
- ▶ Decision makers should address these factors to eliminate therapeutic inertia and improve patient outcomes in hypertension.

determine the documents cited most often, and explore key terms used in indexing the documents; the scoping analysis aimed to identify, collect, analyze, and qualitatively summarize evidence on the factors associated with therapeutic/clinical inertia in caring for patients with hypertension.

METHODS

Source of Documents

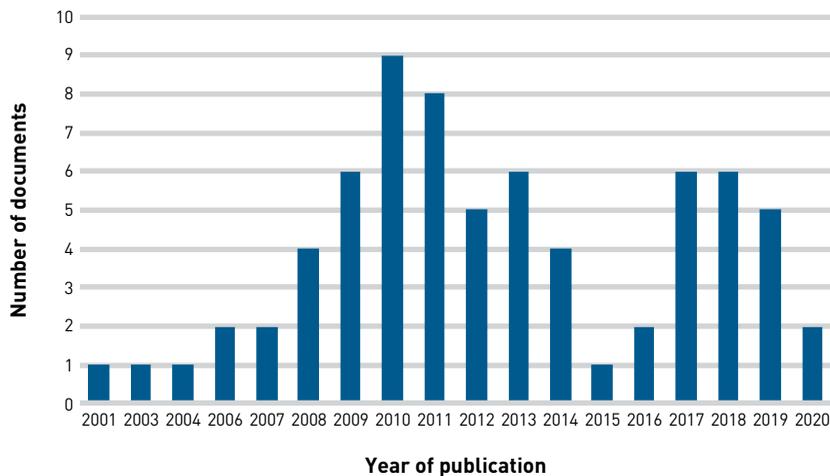
To identify documents reporting on factors associated with therapeutic inertia in caring for patients with hypertension, a literature search and review was conducted using the databases MEDLINE/PubMed, Embase, CINAHL/EBSCO, Cochrane, and Scopus. Citations were imported from Scopus. The decision to use Scopus was informed by the fact that it is the largest database for abstracts and citations of peer-reviewed scientific literature.³⁷ Scopus indexes more documents than either PubMed or Web of Science.

Search Strategy and Identification of Documents

In this study, the Medical Subject Heading (MeSH) terms related to "hypertension" and the key terms "clinical inertia" and "therapeutic inertia" were used to search for documents through their titles/abstracts/keywords. The search was limited to titles/abstracts/keywords because searching by topics/major headings yielded a greater number of less-relevant documents. Therefore, searching by titles/abstracts/keywords was more likely to preserve search sensitivity and was less likely to yield false positives.³⁸ The key terms "clinical inertia" and "therapeutic inertia" were used because MeSH terms relevant to inertia did not exist.³¹ The MeSH and key terms were combined using Boolean operators "AND" and "OR." Documents were searched, identified, and retrieved through a search of the databases from inception of each database until September 23, 2020. Documents identified through the search were screened manually against the inclusion and exclusion criteria before deciding whether to include them in this scoping and bibliometric analysis.

Selection of Documents

Documents identified through the search strategy were imported from the database as research information systems (RIS) and comma separated values (CSV) files. EndNote (Clarivate Analytics) was used

FIGURE 1. Documents Included in This Study, Reporting on Factors Promoting Therapeutic Inertia in Caring for Patients With Hypertension, by Year of Publication

to open the RIS files and Excel (Microsoft Inc) was used to open the CSV files.^{39,40} The file attachment option was used to upload the full text of the finally selected documents into EndNote.

Inclusion and Exclusion Criteria

In this study, documents were included if they were original articles, review articles, book chapters, conference papers, editorials, or notes reporting on factors associated with therapeutic inertia in caring for patients with hypertension. The search was not restricted by the country from which the document originated, the year the document was published, type of access, and/or publication status.

Documents in languages other than English were excluded from this study. Additionally, documents were excluded if they reported on therapeutic inertia in caring for patients with other diseases, especially when hypertension was not a comorbidity.

Extraction of Data

The full text of the documents selected was reviewed using Adobe Acrobat Pro (Adobe Inc); text sections that described factors associated with therapeutic inertia in caring for patients with hypertension were highlighted.^{39,40} Sticky notes and annotations were also used. A data collection form was specifically designed for this study using an Excel spreadsheet (Microsoft Inc). The data relevant to factors associated with therapeutic inertia in caring for patients with hypertension were extracted into the data collection form.

Bibliometric Analysis

In this study, the bibliometric analysis of the data retrieved from the Scopus database included the following indicators: (1) publications by year; (2) country in which the corresponding author was based; (3) journals in which the document was published, with their Source

Normalized Impact per Paper (SNIP) and impact factor (IF); and (4) the 20 most-cited documents.

Data relevant to documents reporting on factors associated with therapeutic inertia in caring for patients with hypertension were obtained from the Scopus database. Informed by previous bibliometric studies, the following indicators were obtained as RIS and CSV files^{34,41}: citation information, bibliographical information, abstract and keywords, funding details, and other information. For each journal, CiteScore, SNIP, and Scientific Journal Ranking were obtained from Scopus. The IF of each journal was obtained from Clarivate's 2019 Journal Citation Reports.

Visualized Analysis

To construct and view bibliometric maps of the analyzed data, VOSviewer version 1.6.14 (Centre for Science and Technology Studies), which is a freely available tool for constructing and visualizing maps and networks, was used.⁴² In this study, bibliometric maps were constructed to visualize and analyze citations and keywords were used to index documents reporting on factors associated with therapeutic inertia in caring for patients with hypertension.

RESULTS

Documents Identified Through the Search

The initial literature search yielded 234 documents. After screening the retrieved documents for those with mention of factors associated with therapeutic/clinical inertia in caring for patients with hypertension, 71 documents were identified and included in the final analysis. The results of the database search and selection of documents are shown in **eAppendix Figure 1** (eAppendix available at ajmc.com). Documents included in this study are shown by year of publication in **Figure 1**. Characteristics of the selected documents are shown in the eAppendix.

The Most-Cited Documents

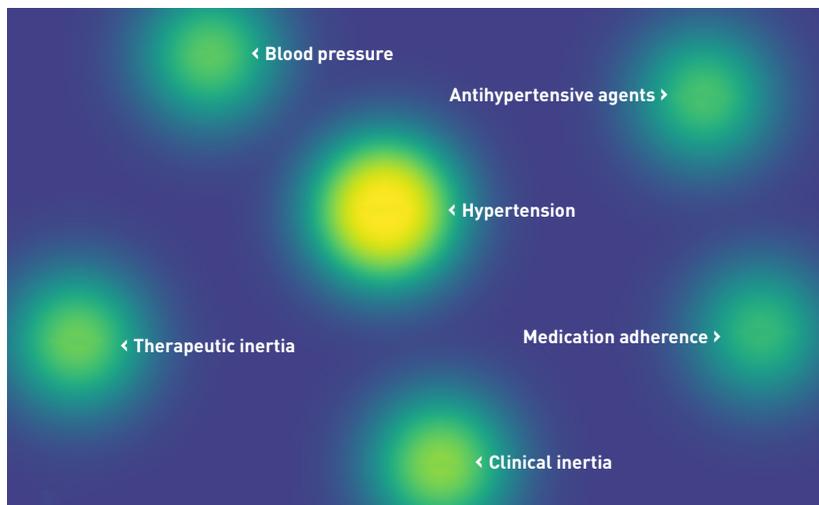
Of the 71 documents included in this study, 3 (4.2%) received more than 100 citations, 5 (7.0%) received between 51 and 100 citations, 29 (40.8%) received between 11 and 50 citations, and 28 (39.4%) received between 1 and 10 citations. Six (8.5%) documents were not cited. **Table 1**^{7,33,43-60} lists the 20 documents cited most often.

Visualization by Mapping Document Citations

Of all documents selected, 65 (91.5%) were cited at least once. To map document citations, the documents that were cited at least once were included in the analysis. **eAppendix Figure 2** shows a network visualization of citations. The documents published by Phillips et al and Okonofua et al had the highest number of citation links.

TABLE 1. The 20 Most-Cited Documents^{7,33,43-60}

#	Authors	Title	Year	Source title	Cited by	Document type	Access type
1	Phillips et al ⁷	Clinical inertia	2001	<i>Annals of Internal Medicine</i>	997	Review	Subscription
2	Okonofua et al ⁴³	Therapeutic inertia is an impediment to achieving the Healthy People 2010 blood pressure control goals	2006	<i>Hypertension</i>	365	Article	Open access
3	Heisler et al ⁴⁴	When more is not better: treatment intensification among hypertensive patients with poor medication adherence	2008	<i>Circulation</i>	123	Article	Open access
4	Andrade et al ⁴⁵	Hypertension management: the care gap between clinical guidelines and clinical practice	2004	<i>American Journal of Managed Care</i>	91	Article	Subscription
5	Ogedegbe ⁴⁶	Barriers to optimal hypertension control	2008	<i>Journal of Clinical Hypertension</i>	80	Review	Subscription
6	Hill et al ⁴⁷	Adherence and persistence with taking medication to control high blood pressure	2011	<i>Journal of the American Society of Hypertension</i>	58	Article	Subscription
7	Lebeau et al ³³	The concept and definition of therapeutic inertia in hypertension in primary care: a qualitative systematic review	2014	<i>BMC Family Practice</i>	55	Review	Open access
8	Hill et al ⁴⁸	ASH position paper: adherence and persistence with taking medication to control high blood pressure	2010	<i>Journal of Clinical Hypertension</i>	52	Article	Subscription
9	Jones et al ⁴⁹	Patients' experiences of self-monitoring blood pressure and self-titration of medication: the TASMINH2 trial qualitative study	2012	<i>British Journal of General Practice</i>	47	Article	Open access
10	Roumie et al ⁵⁰	Clinical inertia: a common barrier to changing provider prescribing behavior	2007	<i>Joint Commission Journal on Quality and Patient Safety</i>	44	Article	Subscription
11	Ferrari ⁵¹	Reasons for therapeutic inertia when managing hypertension in clinical practice in non-Western countries	2009	<i>Journal of Human Hypertension</i>	42	Article	Open access
12	Howes et al ⁵²	Barriers to diagnosing and managing hypertension: a qualitative study in Australian general practice	2010	<i>Australian Family Physician</i>	41	Article	Subscription
13	Gil-Guillén et al ⁵³	Clinical inertia in diagnosis and treatment of hypertension in primary care: quantification and associated factors	2010	<i>Blood Pressure</i>	40	Article	Subscription
14	Faria et al ⁵⁴	A narrative review of clinical inertia: focus on hypertension	2009	<i>Journal of the American Society of Hypertension</i>	36	Review	Subscription
15	Handler and Lackland ⁵⁵	Translation of hypertension treatment guidelines into practice: a review of implementation	2011	<i>Journal of the American Society of Hypertension</i>	35	Review	Subscription
16	Lüders et al ⁵⁶	Improvement of hypertension management by structured physician education and feedback system: cluster randomized trial	2010	<i>European Journal of Preventive Cardiology</i>	34	Article	Subscription
17	Holland et al ⁵⁷	Identifying barriers to hypertension care: implications for quality improvement initiatives	2008	<i>Disease Management</i>	34	Article	Subscription
18	Bennett et al ⁵⁸	The effectiveness of health coaching, home blood pressure monitoring, and home-titration in controlling hypertension among low-income patients: protocol for a randomized controlled trial	2009	<i>BMC Public Health</i>	29	Article	Open access
19	Rose et al ⁵⁹	The accuracy of clinician perceptions of "usual" blood pressure control	2008	<i>Journal of General Internal Medicine</i>	29	Article	Subscription
20	Armario and Waeber ⁶⁰	Therapeutic strategies to improve control of hypertension	2013	<i>Journal of Hypertension</i>	28	Article	Subscription

FIGURE 2. Density Map of Cooccurrence of 6 Author Keywords

Visualization by Mapping Keywords

To identify research hot topics related to therapeutic inertia in caring for patients with hypertension, cooccurrences of terms in the title/abstract of the selected documents were mapped by network visualization. Cooccurrences of 6 author keywords were grouped into 2 clusters as shown by density visualization (Figure 2). Cluster 1 included 4 author keywords: “hypertension,” “blood pressure,” “clinical inertia,” and “therapeutic inertia.” Cluster 2 included 2 author keywords: “antihypertensive agents” and “medication adherence.” Of 848 keywords, 112 cooccurred 5 or more times. When generic terms such as human, humans, article, female, male, priority journal, adult, middle aged, major clinical study, aged, review, controlled study, retrospective study, randomized controlled trial, United States, aged 80 and over, cross-sectional studies, Spain, and qualitative research were removed, cooccurrence of the remaining 91 keywords were grouped into 4 clusters. These clusters can be seen in eAppendix Figure 3 in different colors: red, green, blue, and yellow. Cluster 1 included 35 keywords related to the disease, such as “hypertension,” “antihypertensive agents,” “blood pressure,” and “risk factors.” Cluster 2 included 30 items related to the quality of care, such as “clinical inertia,” “clinical competence,” “disease management,” and “quality of health care.” Cluster 3 included 16 items related to treatment, such as “antihypertensive therapy,” “practice guidelines,” and “angiotensin converting enzyme inhibitors.” Cluster 4 included 10 items related to comorbidities, such as “diabetes” and “dyslipidemia.”

Factors Associated With Therapeutic Inertia in Caring for Patients With Hypertension

Factors associated with therapeutic inertia in caring for patients with hypertension that were identified from the selected documents are

listed in Table 2. In this study, 41 factors were identified from the documents selected. Of the factors identified, 23 (56.1%) were associated with the physician, 12 (29.3%) were associated with the patient, and 6 (14.6%) were associated with the health care system.

DISCUSSION

Recently, there has been more emphasis on improving patient outcomes through adherence to consensus-based guidelines in managing certain health conditions such as hypertension.⁶¹⁻⁶³ Since Phillips et al coined the term “therapeutic/clinical inertia,” there have been many calls to eliminate this phenomenon.^{64,65} This scoping and bibliometric study was conducted to examine, analyze, and summarize the published literature relevant to the factors associated with therapeutic/clinical inertia in caring for patients with hypertension. This is

the first scoping and bibliometric analysis of the factors associated with therapeutic inertia in caring for patients with hypertension. The factors associated with therapeutic inertia in caring for patients with hypertension were qualitatively summarized. The current study also assessed the production of scholarly documents on a yearly basis, authors who conducted the studies, journals in which these documents were published, and the number of citations these documents received.

Findings of this study showed that factors associated with therapeutic/clinical inertia in caring for patients with hypertension were reported in original articles, review articles, notes, book chapters, conference papers, and editorials. In this study, the majority of the documents were original and review articles. It is noteworthy that the majority of the peer-reviewed scholarly documents are original and review articles.^{65,66} In this study, more than half (66.2%) of the selected documents were accessible by subscription. Although open-access publications have witnessed a steady growth in recent years, a large proportion of the peer-reviewed scholarly documents are accessible only to subscribers.⁶⁷

Findings of this study showed that the selected documents were published between 2001 and 2020. This could be explained by the fact that the term therapeutic/clinical inertia was coined by Phillips et al in 2001.⁷ Our findings also showed a steady growth of documents in recent years, as reflected by the number of documents published since 2010.

In the current study, the corresponding authors of more than half (57.7%) of the documents were based in the United States. Documents also originated from other developed countries such as Canada, Spain, France, United Kingdom, Australia, Netherlands, Sweden, Italy, and Germany. However, some documents originated from developing countries such as Ghana, China, Mexico, Sri Lanka,

TABLE 2. Factors Associated With Clinical Inertia in Caring for Patients With Hypertension That Were Identified From the Selected Documents

Factors associated with the physician	
1	When the physician fails to understand the clinical pathology underlying hypertension
2	When the physician fails to set clinical goals in managing hypertension
3	When the physician fails to initiate treatment of hypertension
4	When the physician fails to titrate doses of antihypertensive medications until the therapeutic goal is achieved
5	When the physician fails to identify and manage comorbidities occurring along with hypertension
6	When the physician allows the patient to dominate the discussion during a clinical encounter
7	When the physician does not have enough time to address all patient issues related to hypertension
8	When the physician adopts a reactive rather than proactive care strategy in caring for a patient with hypertension
9	When the physician overrates the quality of health care services delivered to patients with hypertension
10	When the physician underestimates the number (percentage) of patients with hypertension who need intensification of antihypertensive pharmacotherapy
11	When the physician makes soft excuses to avoid intensification of antihypertensive pharmacotherapy
12	When the physician blames patients for not adhering to previous recommendations with regard to their hypertension
13	When the physician believes that the patient would resist intensification of antihypertensive pharmacotherapy
14	When the physician lacks the knowledge relevant to supporting active care of patients with hypertension
15	When the physician lacks the tools relevant to supporting active care of patients with hypertension
16	When the physician lacks the training relevant to supporting active care of patients with hypertension
17	When the physician lacks the office system relevant to supporting active care of patients with hypertension
18	When the physician undertreats or underestimates the significance of risk factors in hypertension
19	When the physician underestimates the significance of pharmacotherapy in hypertension
20	When the physician overestimates the risks associated with pharmacotherapy in hypertension
21	When the physician lacks knowledge of current guidelines followed in the management of hypertension
22	When the physician disagrees with the current guidelines followed in the management of hypertension
23	When the physician disagrees with the applicability of the current guidelines followed in the management of hypertension
Factors associated with the patient	
1	When the patient denies having hypertension
2	When the patient believes that hypertension is not a serious health issue
3	When the patient resists adopting a lifestyle that supports hypertension care
4	When the patient has low health literacy
5	When the patient lacks exposure to or reception of educational programs or campaigns (including advertisements)
6	When the patient cannot afford the costs of antihypertensive pharmacotherapy
7	When the patient has to take a larger number of medications to manage hypertension
8	When the adverse effects of the antihypertensive medications are significant
9	When the patient communicates poorly with the physician
10	When the patient lacks trust in the physician
11	When the patient is experiencing a negative emotional state
12	When the patient has a substance use disorder
Factors associated with the health care system	
1	When clinical guidelines for the management of hypertension are absent
2	When decision support systems for the management of hypertension are absent
3	When active outreach systems in the management of hypertension are absent
4	When disease registries for hypertension are absent
5	When visit planning systems are absent
6	When a team approach to care for patients with hypertension is absent

and Brazil. Findings of this study could reflect the high production of scholarly peer-reviewed literature in developed countries compared with developing countries.⁶⁸ Factors affecting research productivity include infrastructure for research and the availability of equipment, funding, and skilled investigators.⁶⁹

In this study, fewer than 1 in 4 documents declared receiving funds. The majority of the funds were provided by health institutions and pharmaceutical/medical companies. Funding is very important for supporting and sustaining scientific research and improving scholarly productivity.⁷⁰⁻⁷³ Not surprisingly, most of the selected documents in this study were published in journals focusing on hypertension.

In this study, the vast majority (91.5%) of the documents selected were cited at least once. The network visualization of citations showed that seminal documents received a larger number of citations compared with other documents. It was not surprising to observe more citations for older documents, as the likelihood of citation increases as more time elapses since a document's publication.^{74,75} The review article by Phillips et al published in *Annals of Internal Medicine* received 997 citations.⁷ The most-cited documents focused on therapeutic inertia as a barrier to improving health care of patients with hypertension and on factors that were associated with the phenomenon of therapeutic inertia.^{7,43} The documents cited most often were published in influential journals with high IF. In general, investigators tend to cite articles published in journals with high IF.⁷⁶

Density visualization of cooccurrence of author keywords identified 6 terms. The identified terms revealed a focus on hypertension, blood pressure, clinical inertia, and therapeutic inertia. It is noteworthy that MeSH terms for clinical or therapeutic inertia do not exist.³¹ Mapping cooccurrence of all keywords in the titles/abstracts/keywords identified 112 keywords that were grouped into 4 clusters. The identified keywords indicated focus on hypertension, patients and their characteristics, treatment and risk factors, and quality of therapy. Findings of this study showed keywords related to quality of care in the documents that were published recently. These keywords are often used in indexing scholarly documents related to the factors associated with therapeutic/clinical inertia in caring for patients with hypertension. The clustered keywords were related to many factors associated with therapeutic inertia that were identified and summarized in Table 2. The keywords were clustered in relation to hypertension, management of hypertension, the phenomenon of therapeutic inertia, comorbidities, and risk factors associated with inadequate management of hypertension.

In this study, factors associated with therapeutic inertia in caring for patients with hypertension were collected and summarized qualitatively. Factors were related to the physician (the majority of factors), patient, and health care system. In many health care systems around the world, the physician is the sole decision maker. On many occasions, patients delegate the physicians who are caring for them to make critical decisions on their behalf. Therefore, it was not surprising that the majority of the factors were related

to the physician. To provide optimal health care to patients with hypertension, physicians should understand the clinical pathology of hypertension; set therapeutic goals; initiate treatment; titrate and optimize doses to achieve the therapeutic goals; address comorbidities; allocate enough time to instruct, educate, and counsel patients and address their concerns; adopt a proactive care strategy; improve delivery of services; opt for intensification of therapy when needed; possess adequate knowledge and tools and receive training in supporting patients with hypertension; appropriately weigh the significance of risks of the disease and pharmacotherapy; and follow current guidelines.^{7,8,13,43,45-89}

Patients were also responsible for promoting therapeutic/clinical inertia in hypertension. Studies have shown that patient denial, underestimation of the sequelae of the disease, resistance to lifestyle modifications, low health literacy, lack of exposure to educational programs, low economic status, nonadherence to taking medications, lack of coping with adverse effects, poor communication with the physician, lack of trust in physicians, emotional states, and substance abuse contribute to therapeutic/clinical inertia.^{7,8,52,90-96}

The health care system may also contribute to therapeutic/clinical inertia in hypertension by the lack of the following: clinical guidelines, decision support systems, active outreach systems, disease registries, visit planning systems, and team approach to care.^{51,97,98}

Strengths and Limitations

The factors identified, collected, analyzed, and summarized in this scoping and bibliometric analysis provide adequate coverage of the factors associated with therapeutic/clinical inertia in caring for patients with hypertension. In this study, the documents were searched in 5 major databases including Scopus, which is the largest database of peer-reviewed scholarly documents.³⁷ This investigation is the first to combine scoping and bibliometric approaches to address the width and depth of scholarly peer-reviewed documents on factors associated with therapeutic/clinical inertia in caring for patients with hypertension. Evidence on the factors associated with therapeutic/clinical inertia in caring for patients with hypertension was synthesized qualitatively. This study identified the need to direct future studies toward addressing factors associated with therapeutic/clinical inertia in caring for patients with hypertension. Decision makers and policy makers need to address these factors in order to improve health care delivery to and care of patients with hypertension.

The results of this study should be interpreted after considering the following limitations. First, only documents published in English were included in this study. Restricting the search to documents published in English could have excluded some documents that might have contained interesting findings. Second, a scoping approach was adopted for the literature analysis in this study. Historically, systematic approaches to literature review have been promoted as more robust in producing reproducible findings compared with other methods. In this study, a systematic review approach was not used due to the nature of the study, objectives, research questions,

the problem, intervention, comparison, outcome, study design, and the number of the documents to be included.⁹⁹⁻¹⁰¹ Conversely, the scoping approach was used to identify the documents reporting on therapeutic inertia in caring for patients with hypertension and to summarize evidence qualitatively.^{35,36} Third, the scientific quality of the documents included was not assessed in this study. Appraisal of the scientific quality of the documents included could have added another dimension to this investigation.

CONCLUSIONS

Factors associated with therapeutic inertia in caring for patients with hypertension can be related to the physician, patient, and/or health care system. Addressing these factors could be crucial to improving care of patients with hypertension. This scoping and bibliometric study provides insights into the breadth and depth of scholarly peer-reviewed documents on factors associated with therapeutic/clinical inertia in caring for patients with hypertension. Findings of this study could be helpful in shaping future directions of research into therapeutic/clinical inertia in hypertension. Future studies are needed to address these factors and reduce the burden of therapeutic/clinical inertia in caring for patients with hypertension. ■

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eAppendix

Characteristics of the selected documents

Document type and accessibility

Of the documents selected, 43 (60.6%) were original articles and 22 (31.0%) were review articles. The rest of the documents were notes, book chapters, conference papers, and editorials. The number of documents by their type are shown in the web exclusive appendix (**eAppendix Figure 2**). Of the documents selected, 47 (66.2%) were accessible by subscription and 24 (33.8%) were open access.

Publications by year

The selected documents were published between 2001 and 2020. Of all documents identified, 17 (23.9%) were published before 2010 and 54 (76.1%) were published after 2010. **Figure 1** shows year of publication of documents reporting on factors associated with therapeutic/clinical inertia in caring for patients with hypertension that were included in this study.

Country of origin

For the documents selected, 41 (57.7%) corresponding authors were based in the United States, 7 (9.9%) were based in Spain, and 6 (8.5%) were based in Canada. Corresponding authors of the other documents were based in France, United Kingdom, Australia, Netherlands, Sweden, Italy, China, Ghana, Mexico, Sri Lanka, Brazil, and Germany. Countries from where the study originated are shown in the web exclusive appendix (**eAppendix Figure 3**).

Source of funding

Of the documents, the majority (70.4%) had not received or did not declare receiving funding. However, 17 (23.9%) received funding from health institutions or pharmaceutical/medical companies. Sources of funding of the documents selected in this study are shown in the web exclusive appendix (**eAppendix Figure 4**).

Journals in which more than one document were published

In this study, there were 11 journals in which more than one document was published. The journals in which more than one document were published are listed with their CiteScore, SNIP, SJR, and IF in the **eAppendix Table**. A total of 13 (18.3%) documents were published in Journal of Clinical Hypertension. Three documents were published in each of the following journals: Journal of General Internal Medicine, Current Hypertension Reports, and Journal of the American Society of Hypertension.

Factors associated with the physician

The documents included in this study reported that therapeutic/clinical inertia could occur as a consequence to lack of in-depth understanding of the clinical pathology underlying the disease among some physicians. It is noteworthy mentioning that adequate understanding of the pathophysiology that underly a disease is a prerequisite to effectively manage that disease. Therapeutic/clinical inertia could also be associated with failure of the physicians to initiate treatment, set achievable goals, titrate doses, and address comorbidities that could be associated with hypertension.

In clinical practice, physicians should promptly and adequately set achievable goals, design a therapeutic plan, initiate therapy, monitor therapy to achieve the pre-determined therapeutic goals, and manage other comorbidities that could be associated with the disease. Therapeutic/clinical inertia could also be associated with imbalanced dialogue/communication between the physician and patient during the clinical encounter. When one of the parties hijack the encounter, likelihood of therapeutic/clinical inertia apparently increases. Additionally, physicians should allocate enough time to address the patient health concerns during the clinical encounters. Apparently, therapeutic/clinical inertia might be more prevalent in shorter clinical encounters. To minimize therapeutic/clinical inertia, physicians are encouraged to adopt a proactive care approach rather than a reactive one. Physicians should not wait until the complications of hypertension appear, rather, they should address them and minimize the chances of their occurrence.

Healthcare systems are far from being perfect and there is always a room for improvement. Probably, therapeutic/clinical inertia could be minimized with improvements in healthcare delivery and the healthcare services provided. Physicians should not underestimate the number of patients who need intensification of the pharmacotherapy and should not use “soft

excuses” to avoid intensification of the pharmacotherapy. Physicians should also keep in mind that some therapeutic option might fail and it is not always due to lack of patient adherence. Therefore, physicians should monitor and evaluate their patients periodically and intensify/modify their therapeutic plans accordingly.

In modern healthcare delivery, patients are increasingly involved in their healthcare. It is common that patients and physicians take joint decisions. Physicians should keep in mind that patients might resist intensification of pharmacotherapy. As a result, physicians may need to spend extra time explaining to the patients why intensification of the pharmacotherapy might be necessary. In many cases, physicians are not adequately trained on supporting active care, using tools to support active care, and/or have office system that supports active care. These factors were also reported to be associated with therapeutic/clinical inertia.

Physicians should not underestimate the importance of addressing risk factors and the benefits of pharmacotherapy for patients with hypertension. Although pharmacotherapy could be associated with side effects, the risks of the side effects should not be overestimated. Physicians should also keep up with and adhere to the current consensus-based guidelines in managing hypertension.

Factors associated with the patient

The documents included in this study showed that therapeutic/clinical inertia could be associated with patient denying hypertension, underestimating the consequences of hypertension on their health, and showing resistance to adopting lifestyles that are compatible with hypertension. These factors could be prevalent among patients with low health literacy. Decision makers in healthcare authorities should design adequate interventions to increase health literacy among patients with hypertension.

Therapeutic/clinical inertia could also be associated with lack of affordability of the pharmacotherapy. Decision makers in health authorities should address the prices and affordability of the pharmacotherapy. In many cases, polypharmacy in managing hypertension was prevalent and many of the medications used were associated with significant side effects. Adherence to current consensus-based guidelines and screening for presence of side effects might allow addressing them and hence might reduce therapeutic/clinical inertia. Patients having emotional states and abusing substance could also be associated with therapeutic/clinical inertia.

Improving communication and trust between the patients and their caring physicians could reduce therapeutic/clinical inertia.

Factors associated with the healthcare system

The documents included in this study reported that therapeutic/clinical inertia was associated with lack of availability/access to current consensus-based clinical guidelines, lack of decision support systems, lack of active outreach systems, lack of national registries, lack of visit planning systems, and lack of multi-healthcare provider team approach to healthcare. Decision makers in the healthcare systems should consider increasing availability/access and adherence to current consensus-based clinical guidelines. Decision makers in healthcare systems should also consider implementing decision support systems, active outreach systems, national registries, visit planning systems, and multi-healthcare provider teams. Such implementation might reduce therapeutic/clinical inertia.

eAppendix Table. Journals in which more than one document were published

#	Journal	CiteScore ¹	SNIP ¹	SJR ¹	Publisher	Number of documents	%	IF ²
1	Journal of the American College of Cardiology	29.00	5.89	9.99	Elsevier	2.00	2.82	20.589
2	Hypertension	11.40	2.19	2.90	Wolters Kluwer Health	2.00	2.82	7.713
3	Journal of Hypertension	6.70	1.36	1.37	Wolters Kluwer Health	2.00	2.82	4.171
4	Journal of General Internal Medicine	4.20	1.23	1.44	Springer Nature	3.00	4.23	4.597
5	Current Hypertension Reports	6.00	1.11	1.20	Springer Nature	3.00	4.23	3.856
6	Journal of Clinical Hypertension	4.00	0.87	0.92	Wiley-Blackwell	13.00	18.31	2.719
7	Postgraduate Medicine	4.20	0.91	0.58	Taylor & Francis	2.00	2.82	2.464
8	Blood Pressure	4.00	0.79	0.77	Taylor & Francis	2.00	2.82	2.169
9	Current Opinion in Cardiology	3.60	0.73	0.82	Wolters Kluwer Health	2.00	2.82	2.149
10	Contemporary Clinical Trials	3.70	0.92	1.05	Elsevier	2.00	2.82	1.832
11	Journal of the American Society of Hypertension	4.80	1.05	0.90	Elsevier	3.00	4.23	NA

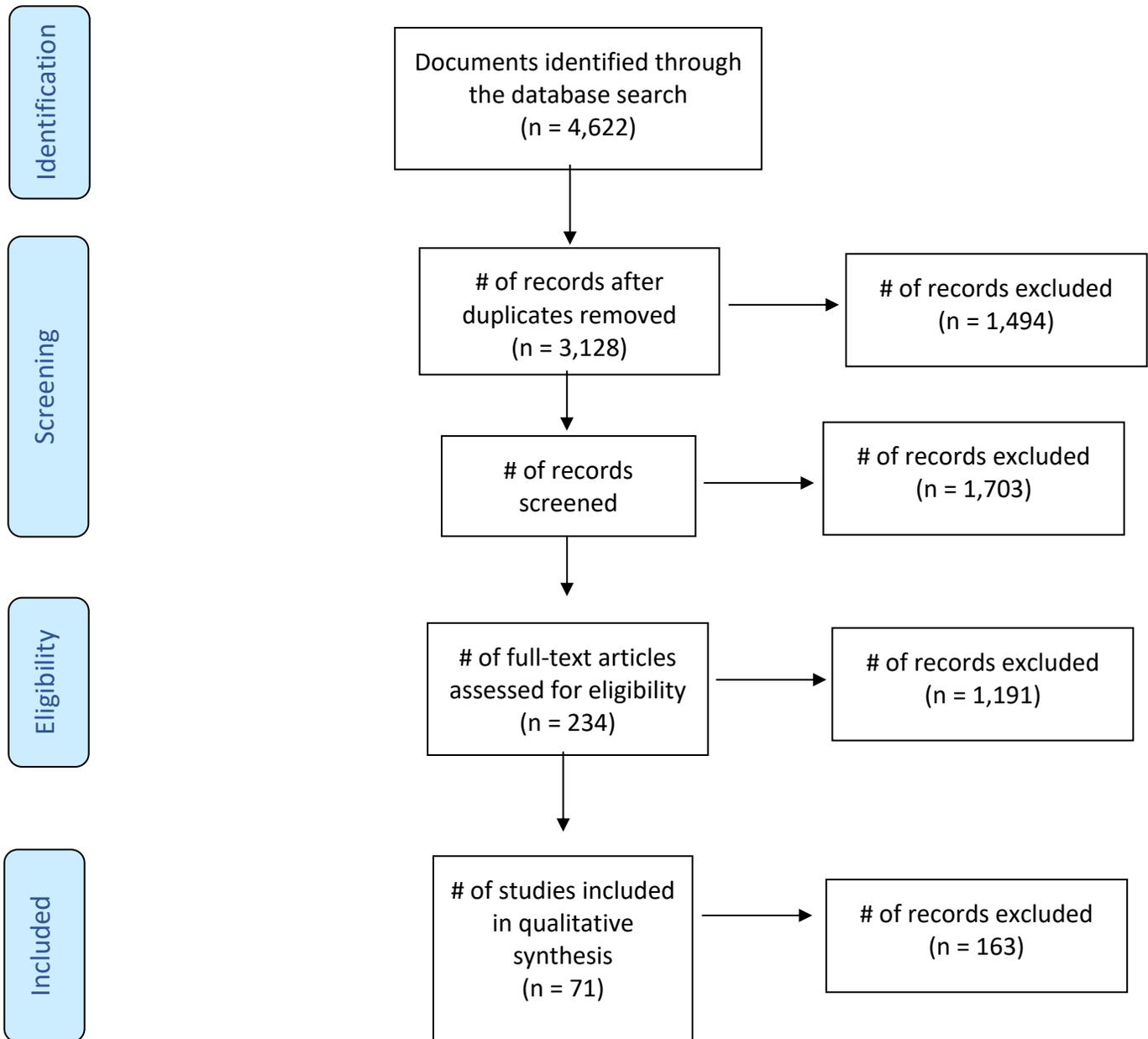
IF: Impact factor, NA: Not available, SJR: Scientific Journal Ranking, SNIP: Source Normalized Impact per Paper

¹CiteScore, SNIP, and SJR were obtained from Scopus sources through

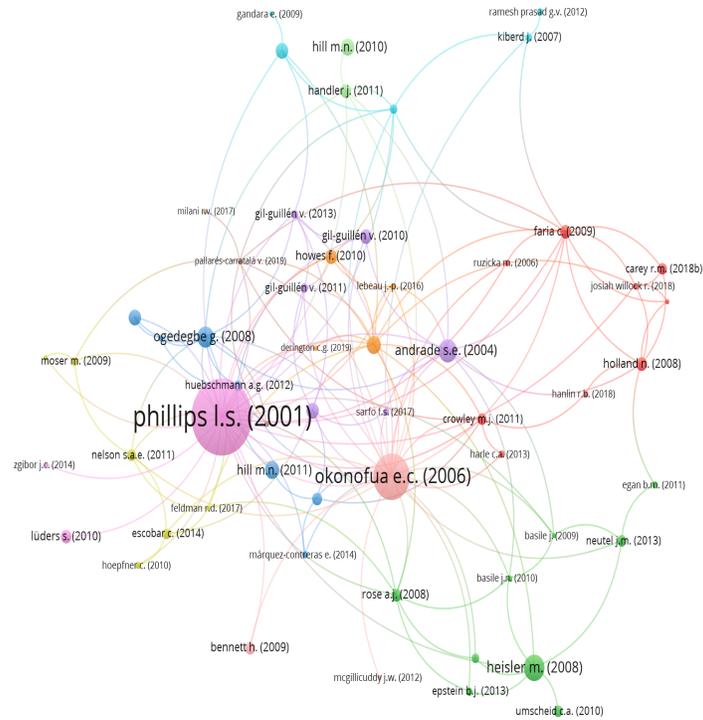
<https://www.scopus.com/sources>

²IF was obtained from the Journal Citation Reports (JCR) 2019 of Clarivate Analytics

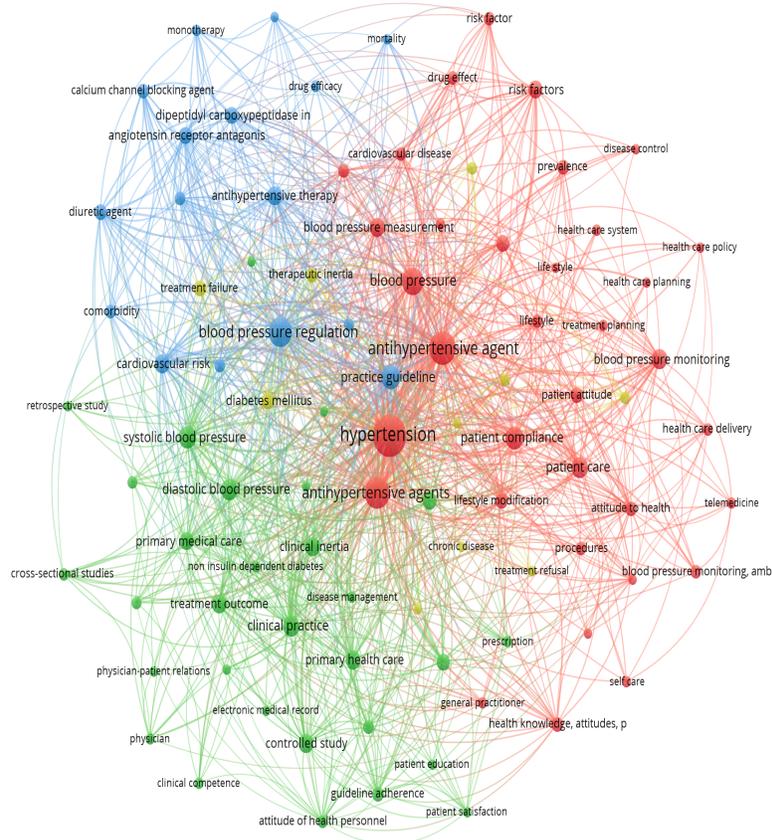
eAppendix Figure 1. Flow diagram of the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA)



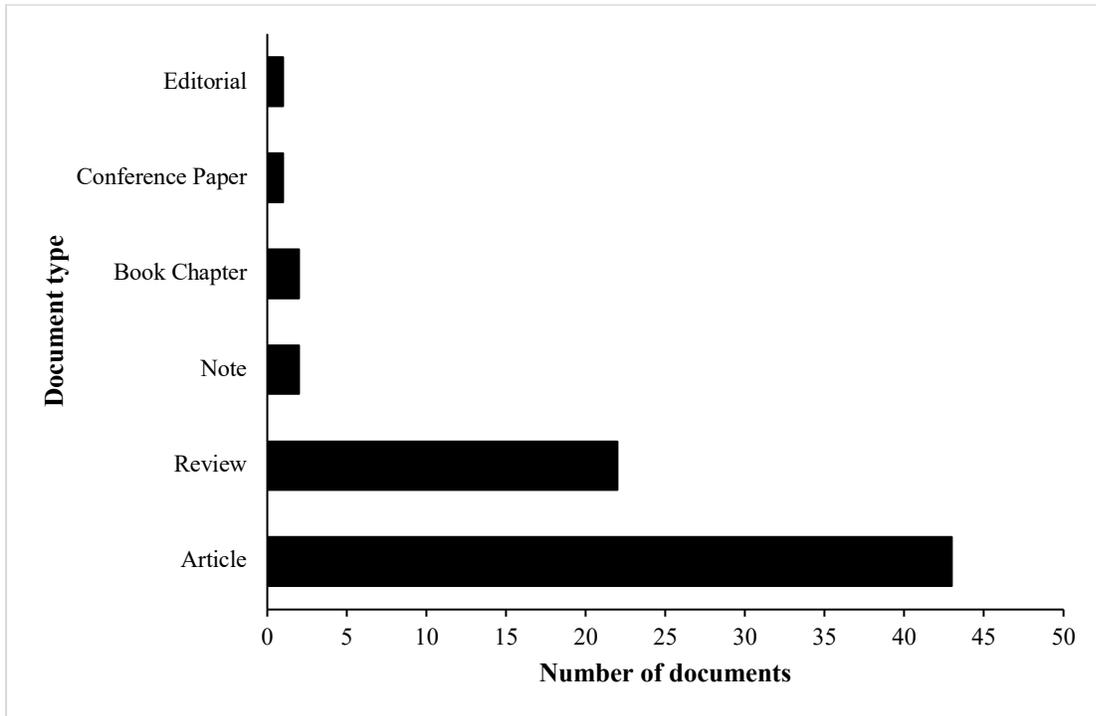
eAppendix Figure 2. Co-citation Map of Documents Reporting on Therapeutic Inertia in Caring for Patients With Hypertension



eAppendix Figure 3. Co-occurrence Map of All 112 Keywords Grouped Into 4 Clusters



eAppendix Figure 4. Number of documents distributed by their type



eAppendix Figure 6. Sources of funding of the documents selected in this study

