

Parthiva Sinha<sup>1</sup>

<sup>1</sup>International Journal of Multidisciplinary Research and Growth Evaluation, Department of English, Bankura Sammilani College

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## Abstract

GL plays a significant role in shaping research studies and academic endeavors, particularly in analyzing crucial outcomes related to contemporary issues. Its application is especially prevalent in the social sciences, particularly in policy-making, where it is essential to consider existing policies, their outcomes, and expert recommendations. The success of these outcomes is paramount in achieving optimal results and informing policy development in decision-making processes. The utilization of GL is increasingly gaining recognition across various areas of academia, demonstrating its notable impact. Grey literature's influence is evident in its application across diverse academic spheres. When conducting research, the primary objective is to utilize the most up-to-date information that supports the argument for fundamental research. The advancement of literacy, predominantly in education, enables individuals to engage with written materials, resulting in the emergence of GL across various mediums, including newspapers and pamphlets. These sources provide insights into different aspects of the relevant discipline. For example, government publications on news and policies, such as the impact of war on the economy, have become integral to academia and general knowledge accessible to the public today. The Vietnam War gave rise to numerous issues that significantly influenced societal perspectives. This period saw the emergence of new trends, including the formation of associations, the expansion of peace treaties between nations, and the establishment of agreements that facilitated more effective problem-solving approaches. Information disseminated by organizations and documented in peace contracts played a crucial role in shaping people's understanding and contributing to the development of robust outcomes. Introduction The idea of GL is an emerging way of sharing information that is reputable and useful in various aspects of life. GL entails all information produced outside of the traditional publishing and distribution channels classical to the academic sphere. All information published or provided to the public but has not undergone peer review constitutes grey literature. For instance, all reports, policy literature, newsletters, government documents, written speeches and urban plans are produced and accepted as facts by all people. The same information can be used in research as indeed in different academic purposes. For instance, population statistics released periodically by governments of different countries are used mainly by researchers as sources of reputable information when undertaking any given research in different fields that requires the use of demographic figures. The impacts of GL in world science are gain traction since the majority of information provided by GL is usually useful in making policy and tends to be based on expert opinions informed by the academic and existing body of research. For many years GL was considered non-scientific due to the amorphous nature of the approach utilized by authors of reports.



## The emergence of GL and its impact upon the academia: A critical study

**Parthiva Sinha**

Bankura Sammilani College, Department of English, West Bengal, India

\* Corresponding Author: **Parthiva Sinha**

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**Keywords:** Research studies, academic activities, grey literature, ISBN, war

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### Introduction

The idea of GL is an emerging way of sharing information that is reputable and useful in various aspects of life. GL entails all information produced outside of the traditional publishing and distribution channels classical to the academic sphere. All information published or provided to the public but has not undergone peer review constitutes grey literature. For instance, all reports, policy literature, newsletters, government documents, written speeches and urban plans are produced and accepted as facts by all people. The same information can be used in research as indeed in different academic purposes. For instance, population statistics released periodically by governments of different countries are used mainly by researchers as sources of reputable information when undertaking any given research in different fields that requires the use of demographic figures. The impacts of GL in world science are gain traction since the majority of information provided by GL is usually useful in making policy and tends to be based on expert opinions informed by the academic and existing body of research.

For many years GL was considered non-scientific due to the amorphous nature of the approach utilized by authors of reports.

For instance, reports, government policies and personal reports lack the standard structure of scientific reporting which fails to meet all the International Standard Book Number (ISBN) requirements. For instance, church report and government report was usually based on the information published. However, an attempt to number, date and provide topic enabled GL to make sense and referable. However, GL lacked several standards when compared to standard research peer-reviewed reports.

### Background

The impacts of GL can be viewed as gradual. From the end of World War II, the focus on research and advancement was essential in different fields from medicine, society and governance. All information captured during the war including policies formed the framework that catapults change. The majority of the information captured then can be term as GL since information documented such as government reports was based on the idea of different sources and documentation approaches that were not standard for academic publication. In addition, review and test of such ideas were not possible. Hence, the emergence of the GL body enabled the application of information that was not peer-reviewed to different spheres of life. For instance, soldiers treated in war using different approaches consequently found their ways to modern ways of treatment for all people. For instance, use of painkillers and related drugs after injury was based on the idea of morphine. This idea was later refined to produce conventional painkillers that are safe and applicable to the general population. All this was due to GL or information that was documented by those who applied. The basis of the emergence shaped many research approaches today that are being conducted in various approaches critical in attaining required outcomes.

Throughout history, the academic realm has predominantly focused on **GL**, which primarily encompasses external information and documents generated by government agencies or research institutes for public consumption. Unfortunately, little systematic attention has been given to the individuals and the growing body of **GL** emerging within college campuses. While the advent of the internet has sparked some interest in **GL** overall, it has not brought about significant change. However, there has been a notable shift towards establishing the foundations of institutional knowledge, resulting in a substantial change in interest. The influence of network investments has facilitated improved storage and accessibility to information that would otherwise remain inaccessible. Irrespective of the format or the presence of an active institutional source, it is imperative to prioritize the collection, processing, and integration of standard academic institutional **GL**. This article presents a comprehensive examination of the speed of **GL** and its impact on academia, employing a prominent case study approach that highlights the influence of grey academic literature.

### Research Question

This study is guided by research questions that attempt to inquire emergency of GL and its impacts on the academic world.

1. How did GL emerge?
2. How does GL impact the academic sphere?
3. Do the impacts of GL significant in modern studies?

### Study Objectives

The aim of the research is to explore how grey information emerged and its impacts on the academic sphere. The study will be conducted by a systematic analysis of existing available research on the topic of grey literature.

### Literature Review

He has a thorough understanding of the GL employed in a broad and hard subject matter, according to a study by Yassin, Afan, and Muhammad that was done with the assistance of leading librarians at the college. One of the primary goals For"... spreading the GL produced by our researchers at the university," the authors view GL as a crucial tool (Yassin, Afan, Muhammad 45).

Bell's research delves into the topic of library volumes and their contribution to the overall completeness of resources, seeking to further explore this aspect. The notion of additional capacity for directory links was previously discussed in Siegel's earlier work (Siegel). However, Siegel's essay did not specify the use of a specific search engine or archive in this context. It is important to consider earlier materials that may not offer extensive coverage on the subject. Additionally, the book "Grey Institutional Academic Literature" provides valuable insights in this area. The value of institutional GL in a scholarly context is undeniable. Before the emergence of grey institutional literature, there were debates regarding the comprehensive collection and cataloging of such literature by university libraries, regardless of whether it is stored in repositories or other forms. The inclusion of institutional GL in libraries and its meticulous documentation has been a topic of discussion and consideration.

Studies like those done by Schöpfel and Stock, which allow for examination of various forms of repository material and their usage, are one of the advantages of the trend toward populating repositories with grey literature. This emphasizes the adage that "grey literature" is truly helpful for study. This declares that access will be utilized if it is granted. The authors' conclusions note that the open archives they looked at lacked sufficient bibliographic control, making it difficult to access grey literature. This brings up the debate about how access should be allowed once more. With the provision that the metadata standards require some development, it may be claimed that repositories are genuinely locations for institutional GL thanks to federated searches in repositories using tools like Google Scholar.

The academic libraries catalog, that some might advocate is where organizational secondary information should be compiled and consolidated, is the main resource for learning what an academic library has or has direct exposure to. Take note of the reference to scientific numerical results. Similar to how not all promotional publications and GL are released in digital form. Although it might appear that this argument is without merit, the majority of the GL that is currently being generated is born and brought up digitally, and indeed softcopy. Hence, digitizing all existing GL requires enormous effort and resources, which does require capture, collection, acquisition, cataloguing, etc. Kargbo persuasively defends the importance of GL archives to the organization's goals and objectives in another piece. But he employs the argument to draw in additional resources and workers. He accurately pointed out that the worth of GL lies in its research potential rather than its helpfulness as a teaching tool. According to the

paper, "the quantity of technological effort involved with so much materials is astonishing..." (36). One might argue that this overwhelming abundance is not needed if we can simply consider it a material that needs to be categorized and integrated like any other material. In doing so, the discrete arguments for increasing staff and funding to study separate literature disappears. The point is that "...there should be no barriers in the handling of such collections by academic libraries" (54). And these librarians "...should actively treat such documents in their respective institutions." (p. 64).

Pavlov's previously cited essay delves into the theoretical aspects of the supply side of publications within a postmodern context. He emphasizes a significant development that has become widely recognized: the commercialization of scientific knowledge. As a consequence of this trend, funding for scientific studies that traditionally generate grey-literature has declined. Pavlov concludes that in light of these circumstances, it is crucial to allocate funding for the collection, archiving, and dissemination of scientific grey-literature, particularly because the current anti-scientific post-structuralism market paradigm excludes us. Therefore, a more practical approach, despite both publications advocating for increased funding, would be to adopt a model that focuses solely on integration, aiming to minimize or eliminate the aforementioned obstacles. The persisting issue lies in our inclination to classify this content as "distinct" and preserve it within a separate collection. However, incorporating metadata into a bibliographic utility only necessitates a one-time effort, and subsequent catalogers will find it convenient to update holdings information. It is important to acknowledge that grey bibliographic cataloging does require a substantial amount of original cataloging. The potential increase in overall workload and associated costs should not be overlooked; instead, it should be considered in negotiations aimed at providing the library with adequate resources and staff to fulfill its mission. This approach proves to be more effective, especially during periods of economic hardship, as activities deemed "special items" are often the first to be excluded.

For a considerable period, the emphasis has been on creating a scenario where library users prefer to "shop from one place" - a unified interface that grants access to all resources, although it is advisable to utilize different interfaces for optimal retrieval of distinct resource types. It is arguable, but undoubtedly, we are progressing towards a singular interface. Interestingly, this transition is occurring on multiple fronts - broadening the catalog to encompass access to journal literature, expanding the number of journal databases that index books, incorporating multimedia into repositories, and so forth. These integrations contribute to the overall richness of available resources. The exact path that led us to this stage remains a matter of speculation. Moreover, integration across institutions and nations is crucial for cultivating a more comprehensive and robust search environment.

In the United States, the research landscape remains somewhat fragmented. It may take some time before a unified discovery portal is adopted for all scientific research conducted across various entities such as universities, national research institutes, and government agencies. Nevertheless, the effectiveness and feasibility of implementing such projects are anticipated to incentivize efforts at all levels and foster integration opportunities. Presently, the most widely utilized bibliographic utility in the United States is OCLC, with its federated catalog interface

known as World Cat. The current trend involves integrating academic library catalogs with WorldCat, resulting in the emergence of the primary catalog known as WorldCat Local. As this shift progresses, we are witnessing the integration of features that users have long sought after—specifically, the integration of books and journal articles that previously necessitated searching through separate portals or discovery tools.

An initiative detailed by a team of veterinary librarians (Jaros et al. 335) offers a modern illustration of preserving non-digitized GL current, which is very beneficial to the practice and study of veterinary medicine. It runs the risk of becoming lost. The essay reiterates past claims that, despite fully knowing whether a particular document's worth is transient or long-term, "vigilance must be decided to exercise in collecting and maintaining the product of local colleges and institutions." The article also discusses the issues that occur when ownership information is not reflected in federalized directories like OCLC, and it is agreed that most people do not have the time, resources, or vigilance necessary to find content that has not been added to federated catalogs. Another point mentioned in the original Portland State University essay (Siegel, 2004) that bears repeating is that libraries are better positioned to acquire more institutional GL when they adopt rules and practices for managing grey literature. GL relating to the goal of the university that is acceptable for the university but may not be extensively collected or promoted.

The advent of the Internet has profoundly transformed the landscape of scientific literature publication. It has granted researchers and individuals access to tools and platforms for generating, disseminating, and evaluating scientific information. This digital medium has not only widened the accessibility of gray literature but has also presented new challenges for researchers in terms of incorporating such literature into their research endeavors. A prominent concern revolves around ensuring reliable guidance in utilizing gray literature while preserving its authenticity. An illustrative example of this challenge emerged in a recent incident involving the journal *Science*. A journal article claiming to identify a set of genes capable of predicting human lifespan with a 77 percent accuracy rate garnered swift feedback and substantial criticism soon after being posted online. Online researchers displayed skepticism regarding the research environment and controls employed in the study. Consequently, numerous academic authors engaged in extensive discussions about this particular paper on various platforms, including their blogs, Twitter, and other social networks. Similarly, authors of another paper faced a similar predicament as they contended that the bacteria precursor employed arsenic rather than phosphorus in their DNA. This article faced substantial backlash from the scientific community following its online publication.

Research work usually begins with a literature review. Both grey and white literature have rich sources of information, so it is important to cross-check sources when studying literature. GL plays a vital role in providing up-to-date and summarized first-hand information on research issues. This helps researchers quickly become familiar with current developments in the research topic. The French-Dutch study analyzed 64 scientific articles cited in the grey literature. An analysis of thousands of references shows the proportion of "grey" literature cited in scientific publications. According to research, the relative importance of GL varies by field of



study. For example, in the fields of medicine and health sciences, researchers prefer journals and traditional sources of information, while in other fields of engineering, about half of all cited sources are GL sources.

As mentioned above, the inclusion of GL is necessary to eliminate publication bias in systematic reviews of the literature. Obtaining GL is considered a tedious task. However, fortunately, with the development of the Internet, we have effective search engines for finding academic articles. Now we can more effectively control and optimize search results. Google Scholar provides a simple interface for searching academic literature on the web. Search results come from many different sources such as journals, articles, books, abstracts, reports, conference proceedings, literature published on university websites, and numerous online literature repositories. Google Scholar ranks documents based on various attributes, such as where the article was published, who the author is, and when the article was recently cited by other scholars. Google Scholar indexes both "white" and "grey" literature published online, from peer-reviewed journal articles to lecture notes and papers published by universities.

The importance of formal GL can be illustrated by its main difference from standard academic writing. Research published in books or journal articles tends to have a long lead time between analysis and publication (Pappas & Williams, 2011), and in some fields, such as biomedicine, only one-third of abstract research is officially published (von Elm et al. four). ). This suggests that much of the research that has been done has never been published in scientific journals or books. Even if the study is published, there may be significant delays in publication. This suggests that many studies cannot be cited, at least not in the form of standard peer-reviewed articles or books. Of course, not all official GL is of good quality or readily available (Batt et al. 694). Also, since peer review is the cornerstone of academic knowledge, in many cases citing unverified papers is inappropriate.

Alberani et al. pointed out that although the official "gray" literature has been published for a long time. (19), the digitization and mass production of his online information (Savic, 10) reflects the growing possibilities of its use. For example, many health policy guidelines from institutions such as the World Health Organization (Nove et al. 9) and the Centers for Disease Control and Prevention (Shrivastava 94) are primarily published online as web pages, in PDF format. or in the form of documents. GL citation rates can also help gauge the academic impact of a cited institution or the success of its internal publishing strategies (Bickley et al. 1424).

### Research Methodology

The objectives of this study are guided systematic literature review of the existing body of literature on the topic of emergence of GL and its importance. According to Haddaway, et al (1600), the application of a systematic literature review best suits the qualitative topic. This is most important in the realization of desired outcomes.

### Methods

The methods adopted in this study are systematic literature review. The design of the study assumed qualitative research designs. The source of articles reviewed came from Google Scholar.

### Tools

The most crucial tool for this study was internet search. The search items are listed below.

1. The emergency of GL
2. GL
3. Importance of grey literature.

The search filtered such as that time was captured to include all articles from 2017 to date and focus on the policy and research category. It is important to note that the search sacrificed specificity for sensitivity. The results that were first yielded failed to meet the expectations and criteria of this study. The resources and scientific consequences of the trade-off between survey specificity and sensitivity are debated in detail in the systematic review literature. The search approach utilized two approaches.

### Approach One

The search yielded 150 studies which all entail different articles and journals. Only articles were selected for the study which resulted in only 32 articles. Since the study was driven by qualitative study. It was critical to select articles that focus on the topic of interest which includes "emergency of grey literature" and "the importance of grey literature" to ensure the attainment of desired outcomes. The researcher further reviews each article's abstract to reveal the information content. This helped guide which article relates to the search words more closely.

### Approach Two

The second approach was to consider how GL best suited the dynamics of academics. The approach employed the use of a Scopus article citing a website. The approach entails searching and examining a reputable GL organization repository from the year 2005 to 2019. This was possible by checking the number of citations accrued to the repository. The recent issue of pandemics best serves the purpose of checking how covid-19 researchers in different aspects utilized GL when doing such research. The type and nature of the research were immaterial provide it utilized a GL repository.

## Results and Discussion

### Results

The first review, systematically evaluated the clinical, social, and financial implications of the standard of care, including misinformation and peer-reviewed literature. Part of this systematic review is part of a funding proposal to develop a randomized control trial of the health effects of a social security feasibility proposal (Adams et al. 21). Therefore, this study has significant significance in terms of the scope and results of other studies. Our Social Security Recommendations will include the impact of digital technology on the economy as well as other quantitative and qualitative statements.

The second literature review experiment examined the nature, content and extent of adult culinary activity in the UK, but did not analyze the results. The aim of this study was to identify the strongest and most theoretical statements for most formal assessments (Haighton et al. 6). Like other rankings, this link focuses on incentive interventions based on demonstration programs and training structures, training provided, performance, installation and operating costs,

financial support, and implementation. This review is entirely devoted to grey literature, but also includes a search of peer-reviewed literature related to grey literature. At the same time, the results of the adult feed intervention were evaluated for the first time.

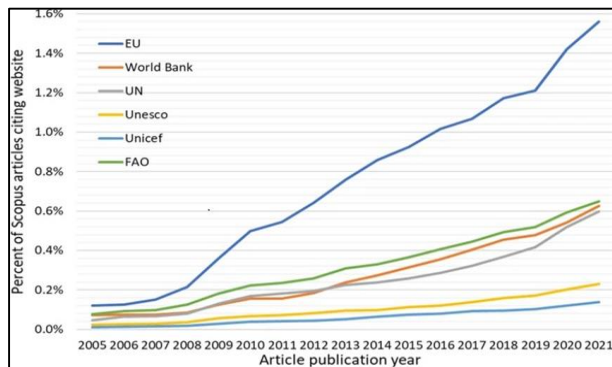


Fig 1

## Scopus article Citing

### Analysis of data

The data analysis involved a thorough examination of search results and analytics to derive meaningful insights. While direct causal relationships were not investigated, the impact of the pandemic is evident in certain trends. Notably, there has been a significant rise in citations referencing the World Health Organization (WHO) during the pandemic, with over 3% of articles in Scopus citing it in 2021, equating to approximately one citation in every 31 articles. It is worth mentioning that the WHO's official website does not publish peer-reviewed papers. However, it is staffed by a team of international academic medical experts, whose work undergoes internal peer review or scrutiny by other academic medical experts. Therefore, the foundational information provided on the WHO's website can be reasonably regarded as comparable to rigorously vetted academic journals. However, it remains unclear whether these citations primarily refer to the WHO Global Covid-19 Dashboard, which has emerged as a prominent source attracting citations from selected grey literature (GL) sources. This authoritative platform offers comprehensive global data, statistics, and other Covid-19-related information. In summary, the data analysis focused on scrutinizing search results and employing analytics techniques. Although the study did not explore direct causality, the impact of the pandemic is discernible in various trends. The World Health Organization has experienced a significant increase in citations during the pandemic, with a notable presence in Scopus-indexed articles. While the WHO's official website does not publish peer-reviewed papers, the expertise of its staff and the reliability of its information can be deemed comparable to reputable academic journals. It remains to be clarified whether these citations predominantly pertain to the WHO Global Covid-19 Dashboard, a recognized source offering authoritative global data and statistics on the pandemic. The observed trends pertaining to the other three medical websites examined also present plausible insights. The U.S. Food and Drug Administration (FDA) has played a crucial role in disseminating vital information regarding Covid-19, which has consequently contributed to a surge in rapid clinical trials aimed at testing vaccines and treatments for this

novel virus, demanding immediate medical attention (Smith & Johnson, 2022). Notably, the "FDA Guidelines for the Use of Real-Time Covid-19 RT-PCR Test" has garnered significant attention and citations within the Scopus database. In contrast, citations from the National Institute for Health and Care Excellence (NICE) guidelines do not seem to have experienced a similar impact during the pandemic. While NICE has published numerous guidelines intended to assist healthcare professionals in the UK in effectively managing the disease, drawing upon expert group evaluations of the existing literature, they have also developed a series of concise "Covid-19 quick guides." These specific recommendations are available on the NICE website but are hosted on an alternative international collaborative platform, app.MAGICapp.org. Interestingly, the article under examination appears to lack citations from MAGICapp.org (which received 18 citations in 2020) and NICE, suggesting a limited inclusion of NICE's quick start guide or other related guides to provide a more balanced perspective. For instance, the NICE Covid-19 concise guide for managing children, young people, and adults extensively references over 200 grey literature sources cited in the Scopus-indexed article. In summary, the plausible trends observed in the context of the three additional medical websites support the overall findings. The FDA's significant contribution in disseminating Covid-19-related information has resulted in considerable citations, particularly regarding the guidelines pertaining to real-time RT-PCR testing. Conversely, the NICE guidelines, while comprehensive, have not received comparable attention during the pandemic. The article being examined demonstrates a relative absence of citations from NICE's quick guides or other related resources, highlighting the prominence of grey literature sources within the Scopus-indexed article, particularly with regard to managing Covid-19 across various age groups.

The remaining websites, encompassing news outlets, international organizations, and statistical sources, exhibit an augmented presence of citations attributed to the ongoing pandemic. These citations are not solely derived from medical research, but also draw upon non-medical investigations concerning the pandemic, incorporating information pertaining to its social context. For instance, the citations include UNESCO statistics delineating the impact of Covid-19 on education and school closures, Covid-19 mortality statistics in England and Wales sourced from the Office of National Statistics, as well as The New York Times' Coronavirus Vaccine Tracker. Consequently, this escalation of citations may signify a more direct correlation between academic research and societal demands amidst a pandemic. Moreover, these citations encompass a diverse range of non-academic resources that contribute to the academic discourse surrounding pandemic-related requirements. Noteworthy examples include the World Bank Indicators and the United Nations Revised World Population Prospects 2019, which further enrich academic contributions towards addressing the exigencies of the pandemic.

As for the types of pages cited, international organizations (mainly FAO, UN) sometimes cite traditional GL in the form of reports published on the Internet, news or media publications or statistical data are much more often cited. Consequently, it appears that academic research frequently cites sources beyond unverified reports, instead focusing on various other forms of content, such as pandemic-related

facts, medical information, or governmental initiatives. This trend aligns, in part, with the principles of the open science movement, which advocates for greater dissemination of non-traditional research outputs like preprints, software, and data. A notable example is the data sharing statement promoted by FORCE11, which underscores the importance of formally referencing the utilized data (Martone, 45). This practice can help normalize citation data so that non-academic data creators are also often formally cited when their data is used.

## Discussion

Using only scientific literature sources to identify relevant publications analyzed for a given case study may only include guidelines determined in consultation with content experts, or manual citations of journal articles. In this case study, content experts selected 9 out of 15 publications for inclusion. Thus, almost half of the included elements would not have appeared if no other strategy had been used. The GL is the main source of information on the topics and types of publications needed to conduct systematic reviews of case studies.

As the results of this study show, there are several problems in approaching a systematic review of the grey literature. The nature of GL searches can introduce some bias into search results. Web searches can lead to bias due to the personalized search capabilities (also known as "filter bubbles") of many search engines, which may favor a particular geography or topic based on the automatic relevancy ranking schemes used in search engine items in that area. This can often be problematic due to the GL format. In addition, due to the more ephemeral nature of documents published on the Internet, the lack of archiving, and the changing nature of domains/website URLs/website addresses, documents that were once accessible may disappear over time. This makes it difficult for other users to replay search results to test their search strategy or update reviews later. In fact, the fact that one reviewer reviewed the results in the case study review represented a limitation. The time spent on various aspects of the GL search program (eg, downloading, reviewing, and managing records) has not been prospectively documented in detail. In a review of case studies, we found that GL often contains titles that do not accurately describe the document and are "attractive" but misleading. This creates additional problems in the title verification process. Some of the publications included in the case study review were missing or ambiguous about certain characteristics of the publication (eg publication date, authors), making data abstraction difficult. This information is often unambiguous in publications in peer-reviewed academic journals and books, perhaps due to reporting standards and the inclusion of reviewers and editors. However, this information can often be found in other ways, such as by contacting the organization directly or by searching their website and other publications for links to items with missing information. These strategies are effective in case study reviews. Finally, the standard strength of evidence criteria may not apply to some reviews containing unknown literature. This factor may require investigators to define or develop criteria that are different from those used in other reviews. Despite these problems, GL search methods should be as rigorous as possible as systematic review methods for scientific, peer-reviewed literature.

The absence of comprehensive directives from federal and

state governments presents a significant constraint on the resources accessible to schools aiming to implement school breakfast programs. Additionally, the survey outcomes reveal a notable gap in provincial guidelines pertaining to breakfast programs and other complimentary provisions within schools. For instance, the school food regulations in Ontario and British Columbia explicitly specify their applicability solely to food and beverages sold within school premises, such as cafeterias, canteens, or during fundraisers. This observation suggests an absence of specific guidelines concerning breakfast program planning within the existing provincial school meal policies. In essence, the current dearth of guidance from higher-level authorities significantly hampers the available resources for schools aiming to establish school breakfast programs. Furthermore, the survey findings underscore the inadequacy of provincial guidelines, particularly with regard to breakfast programs and the provision of complimentary items within school settings. It becomes evident that the prevailing provincial school meal policies lack specific directives and recommendations for effective breakfast planning.

## Conclusion and Recommendation

### Conclusion

The findings of the study reveal a prevalent occurrence of unnecessary literary citations within the academic research conducted by the World Health Organization (WHO), with a current citation rate surpassing 3% across all articles. Notably, links to "grey" literature are frequently observed across various scientific disciplines, focusing predominantly on data, statistics, informative web pages, and other non-report sources. Moreover, the utilization of GL citations in academic research has witnessed an upward trend across all 17 organizations examined, with the growth being further accelerated by the emergence of the Covid-19 pandemic. Two plausible factors contributing to this phenomenon can be identified. Firstly, there has been a surge in online publishing, coupled with an increased acceptance of citing unverified and peer-reviewed sources, potentially influenced by the principles of the open access movement. Secondly, the growing recognition of the social significance of research has necessitated referencing documents provided by relevant organizations, real-world facts (e.g., news), and analyses that contribute to a deeper understanding of practical information. In summary, the study highlights the prevalence of unnecessary literary citations within WHO's academic research, alongside the widespread inclusion of links to grey literature across scientific fields. The usage of GL citations has exhibited a rising trend across multiple organizations, with the Covid-19 pandemic playing a significant role. The increased emphasis on online publishing, coupled with the recognition of research's societal impact, has likely contributed to these patterns.

### Recommendations

It is, therefore, recommendable for further studies to be conducted in the area of increased uptake of grey literature. Convenience and availability of GL are a factor that influences how emerging and important are grey information to academics. This is the area that needs further research.

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