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Short Communication

Occupational Health Could be the New Normal Challenge in the Trade and Health Cycle: Keywords Analysis Between 1990 and 2020

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ABSTRACT

This brief report aims to establish the keyword content of studies on occupational health and safety—the key framework of the world of work in the trade and health domain. Data were collected from the SCOPUS database, focusing on articles on occupational health and safety and related keywords, with an emphasis on abstracts and titles. Data were analyzed and summarized based on keywords included from the MeSH database. There were 24,499 manuscripts in the domain and 1,346 (5.40%) occupational health-related keywords, including those that overlapped. The most frequently referenced occupational health-related keyword was “occupational health” (452 articles), followed by “occupational safety” (141 articles). There were fewer keywords on occupational health in the trade and health literature. As the world of work has been prioritized because of the recent new normal of work life since the COVID-19 pandemic, examining the focus of occupational health priorities within the global perspective is crucial.

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Short communication

In the literature on the concept of technology transfer from developed to developing countries, globalization and trade-related occupational health and safety (OSH) issues have been frequently discussed, including the following topics: incompatibility and inadequate readiness of developing countries to utilize such technologies, limited or inadequate infrastructure and legislation, unionization processes and stages, poor working conditions that cannot be monitored because of immaturity of civil oversight, and multidimensional environmental, cultural, and health effects that cannot be developed [1,2].

Rapid globalization between the 1990 and the 2010s of small- and medium-scale enterprises emerged, and existing issues in globalization and OSH concepts in the global workforce started to evolve to adapt to foreign markets. OSH is an important aspect that should be considered as being tightly interconnected with all dimensions of globalization for improvements, but is a research topic that has only been focused on recently in trade and health literature. Operational and dynamic resources of international trade under the effects of workforce-related needs and new emerging issues about work life during the COVID-19 pandemic need to be prioritized to prevent an uncontrollable negative transformation

without the timely and effective long-term planning during the transition period to the “new normal.”

Interactions among the environment, humans, and technology during the evolution of COVID-19—related changes can trigger the creation of common standards for all before the sustainable development goals related to the necessities for OSH are addressed by the United Nations. It is important to reconsider and adapt the new normal needs for workforce wellbeing in governmental, intergovernmental, and supranational regulations for new normal practices in global trade.

In this short report, a keyword analysis is conducted using the SCOPUS database® to gather articles published in the trade and health domain between 1990 and 2020. SCOPUS has an extensive database, and the coverage of research includes EMtree, medical sub headings (MeSH), and others. Furthermore, it is updated daily and covers 5900 titles in life sciences and health sciences; physics, chemistry, math, engineering, psychology, social sciences, economics, agricultural, environmental, and general sciences [3]. A multiterm search was performed on the MeSH entries using occupational health-related keywords to collect relevant articles in the trade and health domain. The following search query was used to gather studies related to the topic: “TITLE-ABS-KEY ((“trade” AND “health”) AND ((“one health”) OR (“Industrial Hygiene”) OR (“Industrial Health”) OR (“Work* Safety”) OR (“Occupational

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Safety”) OR (“Employee Health”) OR (“labor health”) OR (“industrial hygiene”) OR (“occupational Health”) OR (“work hygiene”) OR (“employee wellbeing”) OR (“work* health”) OR (“Occupational Disease*”) OR (“occupational medicine”) OR (“occupational health service*”) OR (“occupational health and safety”) OR (“occupational safety and health”) OR (“work* health service*”))) AND (LIMIT-TO (DOCTYPE, “ar”) OR LIMIT-TO (DOCTYPE, “re”)) AND (LIMIT-TO (LANGUAGE, “English”)). The full search strategy of the process has been attached as a supplementary file. The flow diagram of the search is presented in Fig. 1. The search found 24,449 documents for the last 30 years in the trade and health domain. According to the search query, 1346 papers were refined from the system for the keywords analysis. A cloud-based computing environment was selected for text processing, namely Google’s collaborative platform with 13 GB RAM, 108 GB disk capacity, and Intel(R) Xeon(R) 2xCPU @ 2.30GHz that provides a free Jupyter notebook environment for Python programming language implementations. Descriptive

results were given in accordance with frequencies of keywords, their locations in the paper, and distributions over the years.

A partial text analysis/word clouds was conducted to create a visual representation of the most frequently occurring words in the given sections of the included manuscripts. QSR International’s Nvivo® 12 trial version, qualitative data analysis software was used for creating the word clouds and partial text analysis of the keywords (See the [supplementary file](#)).

There were 24,499 manuscripts in the trade and health literature, and 1346 (5.49%) manuscripts included occupational health-related defined keywords in their abstract, title, and keywords sections.

Over the years, the number of studies in the trade and health area differed substantially. Fig. 2 shows that research into the trade and health field increased gradually between 1989 and 2000 and peaked in 2018.

The most frequently referenced occupational health-related keyword in the keywords section was “occupational health,”

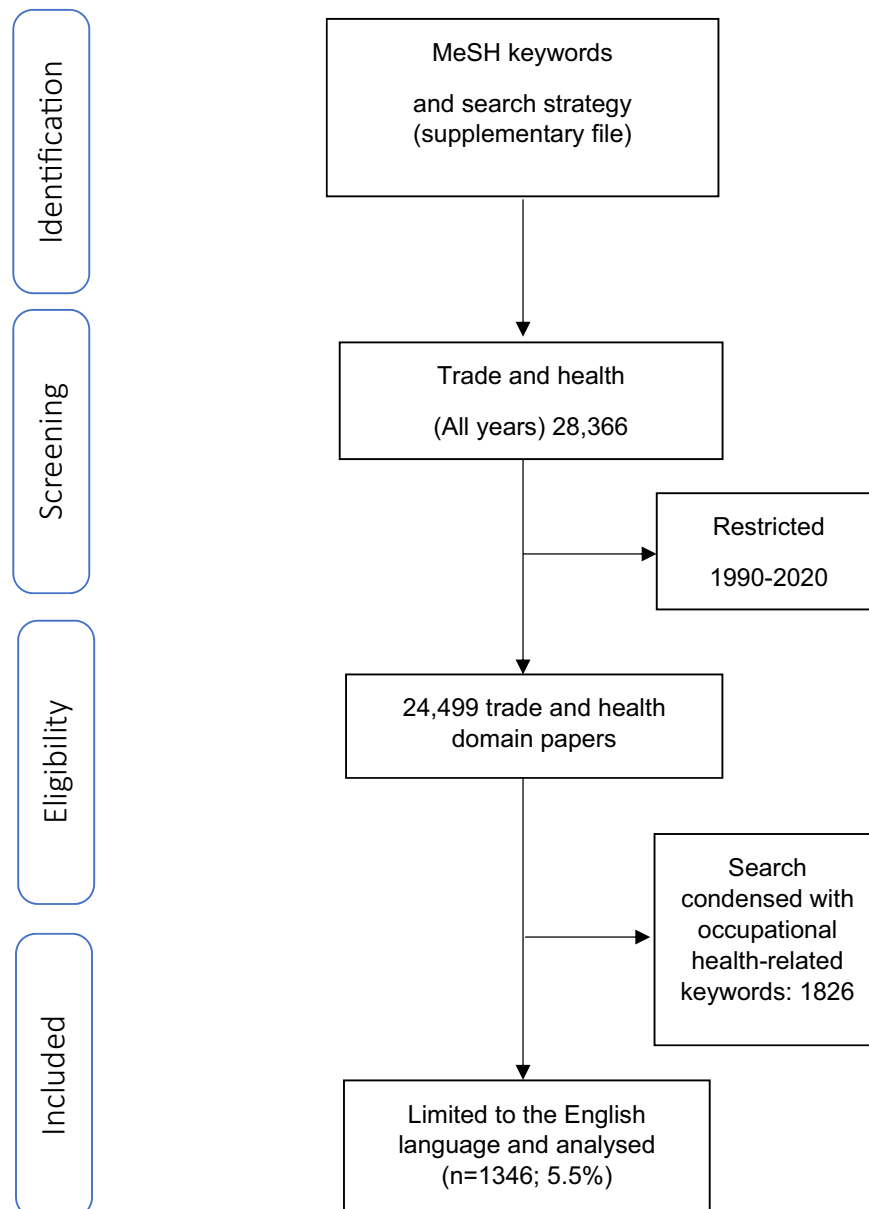


Fig. 1. The flow diagram of the search and the manuscripts being analyzed.

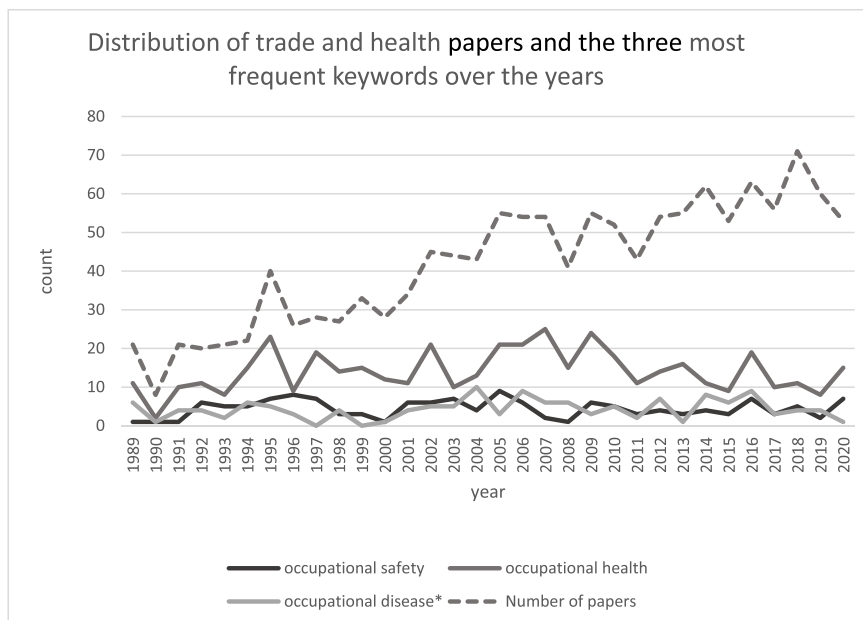


Fig. 2. Distribution of the manuscripts in the “trade AND health” literature over the years (1989–2020) and the three most frequent keywords.

which occurred in 452 of the articles. It was followed by “occupational safety” that was used 141 times in the manuscripts (Table 1).

However, “Work hygiene,” “employee wellbeing,” and “work health services” were not addressed in any of the abstract, title, or keywords sections of the articles in the global trade and health domain between 1990 and 2020. The other related keywords were found at a ratio of less than 0.1% in the defined sections of the manuscripts.

This short communication aimed to identify and outline the given MeSH terms’ frequencies, with attention to the occupational health and safety-specific keywords, in the “trade and health” domain, in which the focus is primarily on the total distribution of occupational health—and safety-related keywords and the yearly distribution of the most frequently used ones. This keywords analysis revealed that occupational health research—related keywords in the searched sections (title, abstract, and keywords) of the trade and health literature were only represented at 5.49%, while workforce health is one of the main important aspect and in connection with the key variables regarding the world of work. There were yearly changes in interest in the trade and health literature that may have been caused by globalization trends, and the norm setting role of the United Nations induced during the rapid globalization process between the 1990s and 2010s [4,5]. These yearly rises might continue within this research field, especially after the world economic crisis, to promote more comprehensive and internationally concerted approaches and, recently, to create preventive approaches to protect the world economy, which have been undertaken because of the pandemic [5]. It might be argued that occupational health research should have received more attention during the period when the world of work was the basis of the relationship between labor and health in trade literature. Even though research trends directed by integration health issues are rising as globalization progresses, there is a clear need for future research on occupational health under the banner of trade and health more than ever as a result of the pandemic that might cause workforce and related changes in the world of work.

The status of the global labor force and, specifically, the health of workers have become more important than they have ever been due to the outbreak of COVID-19, specifically in terms of

workforce-related issues in global trade. Thus, workforce-related trade elements such as employment relations and conditions, workforce mobility, and distance work and interactions within the global economy must evolve to the new normal by considering occupational health issues [6]. However, unless this evolution is structured in a way that guarantees the workforce the related sustainable development goals (SDG-8) and shared mutual developments in terms of health and global trade, its developments will be questionable. As such, appropriate work that adheres to OSH guidelines and the SDG-8 and the concept of “decent work for all” should be promoted in the global trade cycle for the global workforce [7–9]. In the multidimensional trade and health relationship, the definitions and practices of such concepts as working styles, labor mobility, and labor force health are transforming into that of the new normal. Moreover, occupational health and multidimensional interactions of the world of work should be reconsidered under SDG of the UN, to ensure a better and well defined reshaping period for new developments in world economics, as per the norms of global trade in the short and long term during and after the pandemic. SDG and its related processes can be realized if there is an OSH component that focuses on promoting healthy working lives within the context of other components of the global trade health cycle (SDGs cannot be divided and have interconnected links to one another). Meanwhile, a holistic OSH approach might be the most important part of the One Health concept regarding interactions within the world of work. Under the influence of such an approach, the environment and populations can transform the trade and health cycle into a global development tool through positive and self-fulfilling global interactions [1,2,10].

The “One Health” keyword was one of the most frequent in the searched manuscripts (the fourth in titles, fifth in abstracts, and eighth in keywords). There is also an understanding that the world of work needs to adopt a holistic, integrated, and preventive approach in OSH that is encompassed by the One Health concept [11,12]. Local, national, tripartite, international, intergovernmental, and supragovernmental entities along with related stake holders that influence the global labor workforce should also prioritize common principles by focusing on OSH and healthy lives as the core

Table 1

The 10 most frequent keywords in the titles, abstracts, and keywords of the selected papers on occupational health and safety

Keywords	Count	% in the main domain (trade and health (24,499 articles)	% in occupational health (1346 articles)
occupational health	452	1.84	33.58
occupational safety	141	0.57	10.47
occupational disease*_	137	0.56	10.17
occupational health service*	74	0.03	5.49
occupational safety and health	60	0.24	4.45
occupational health and safety	51	0.21	3.79
occupational medicine	31	0.13	2.30
one health	27	0.11	2.00
industrial hygiene	25	0.10	1.86
employee health	4	Less than 0.1	0.29
Abstracts			
occupational health	277	1.13	20.57
occupational safety	166	0.68	12.33
occupational safety and health	143	0.58	10.62
occupational health and safety	103	0.42	7.65
one health	54	0.22	4.01
occupational disease*	52	0.21	3.86
occupational medicine	29	0.12	2.15
occupational health service*	22	Less than 0.1	1.63
employee health	14	Less than 0.1	1.04
industrial hygiene	14	Less than 0.1	1.04
Titles			
occupational health	93	0.38	6.90
occupational health and safety	37	0.15	2.75
occupational safety	29	0.12	2.16
one health	25	0.10	1.86
occupational safety and health	25	0.10	1.86
occupational disease*	8	Less than 0.1	0.59
occupational health service*	7	Less than 0.1	0.52
occupational medicine	4	Less than 0.1	0.30
industrial hygiene	2	Less than 0.1	0.15
work* safety_	2	Less than 0.1	0.15
work* health	2	Less than 0.1	0.15

*stands for truncation (terms in search query sharing a common stem)

of One Health in the trade and health cycles [10,12]. Although OSH may appear to be a microlevel trade off, this concept is based on the idea that social determinants of global health are inherently important, and, because of the continuity of interactions, strengthening SDGs as a part of the new normal challenge in the trade and health relationship will protect the elements that sustain the system at the macrolevel. Furthermore, urgent questions about changes related to COVID-19 in the context of global trade and health cycles need to be raised and discussed as early as possible so that the workforce can create a clear path forward. Thus, research focus needs to be reconsidered with a focus on this aspect of literature in the near future. Determining further combinations of occupational health and safety keywords, as well as examining critical periods/events related to these keywords, might be analyzed in future research. A comparison of different domains of

occupational health and safety should also be studied before and after the COVID-19 pandemic.

On the other hand, “employee health” and “employee and wellbeing” were not found in any of the abstracts, titles, or keywords of the articles in the global trade and health domain between 1990 and 2020. This was also the case for “occupational/industrial hygiene,” “Occupational/work health services,” and “occupational medicine and diseases.” However, these terms will be the highlighted issues when COVID healthcare workers are considered on a global scale. Accordingly, employee health- and safety-oriented standards will then be able to promote the health of employees and their related communities worldwide. Thus, these standards in the global trade and health relationship should receive greater attention than ever before. Further, COVID-19 is currently providing the impetus for this focus as new rules concerning the pandemic are emerging to adapt to the consequent new situations [13].

Availability of data and materials

Available in Scopus as raw data in Excel and CSV formats with the given inquiry.

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Conflicts of interest

All authors have no conflicts of interest to declare.

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Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.shaw.2020.11.003>.

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