Information Research Communications, 2024; 1(2):83-103.
https://inforescom.org

Review Article

A Review of Occupational Health and Safety Disclosures: Trends Identified through Structural Topic Modelling

Arun Podayan*, Charumathi Balakrishnan

Department of Management Studies, Pondicherry University Chinna Kalapet, Kalapet, Puducherry, INDIA.

ABSTRACT

This paper evaluates the evolution of Occupational Health and Safety Disclosure (OHSD) practices in corporate reporting by applying structural topic modeling to literature from the Scopus database. The study explores prominent research themes within OHSD by utilizing machine learning techniques. A comprehensive keyword search in Scopus identified 956 relevant articles published between 1974 and 2024, which were analyzed using STM and bibliometric analysis to highlight key research objectives, affiliations, focal areas and epistemological trends. The findings reveal that OHSD research has grown steadily over time, focusing on OHS auditing in construction supply chains, sustainable business practices, regulatory frameworks and global safety standards. Emerging areas of interest include OHSD in corporate reporting, employee well-being and workplace dynamics. These insights provide a deeper understanding of OHSD research priorities and trends, which can guide businesses in improving their OHSD practices and aligning them with sustainability initiatives. Furthermore, these findings offer valuable guidance to researchers, funders and policymakers in addressing contemporary OHSD issues. This study is unique in its use of STM to identify research themes and trends. It utilizes the find Thoughts function to explore relevant articles derived from the STM process, thereby offering a novel approach to understanding OHSD developments in corporate reporting.

Keywords: Machine learning, Occupational health and safety, Reporting disclosure, Structural topic modeling.

Correspondence:
Mr. Arun Podayan
Department of Management Studies, Pondicherry University, Chinna Kalapet, Kalapet, Puducherry, INDIA.
Email: sparun7796@pondiuni.ac.in
ORCID: 0000-0001-6521-4411

Received: 05-12-2024;
Revised: 06-12-2024;
Accepted: 27-12-2024.

INTRODUCTION

Occupational Health and Safety (OHS) disclosures play a vital role in shaping public perceptions of corporate working conditions. As organizations strive to create safer and healthier workplaces, the voluntary disclosure of OHS procedures has become an essential element of corporate transparency and responsibility (Rikhotso *et al*., 2022a). These disclosures not only ensure the well-being and safety of employees but also contribute to the overall sustainability of organizations. Despite its importance, the integration of OHS into sustainability reporting remains a relatively new and evolving practice (Kawashita *et al*., 2005). Many companies recognize OHS as both a legal obligation and a key component of their sustainability strategies, using it to demonstrate their commitment to fostering safe work environments and responsible business practices (Alves and Ramos, 2022a). Through comprehensive OHS disclosures, companies provide insights into their efforts to protect and promote the well-being of stakeholders (Olanrewaju *et al*., 2022). These disclosures may include a variety of measures, such as OHS training programs, safety protocols, risk assessments and open communication regarding safety issues (Abdul Hamid *et al*., 2020).

Despite the growing importance of OHS disclosures, there is still limited research on how firms systematically incorporate these practices into corporate reporting. While Hahn and Kühnen (2013) investigated sustainability reports and Monteiro (2021), focused on employee-related disclosures, applying advanced methodologies such as Structural Topic Modeling (STM) to OHS disclosure research remains underexplored. STM has been successfully applied in other fields to uncover hidden thematic patterns-for example, bai *et al.* (2021) used STM to analyze trends in marine transport research, while Ali *et al.* (2019) applied STM in their analysis of hospitality management literature. Chen and Xie (2020) used STM for bibliometric analysis in sentiment analysis research, demonstrating its versatility across different domains.

The present study builds on this growing body of research by applying Machine Learning (ML) techniques, specifically STM, to explore key themes in OHS disclosure. Using a keyword search in Scopus, 956 articles published between 1974 and 2024 were identified and analyzed through STM and bibliometric analysis. These methods aim to uncover research objectives,

DOI: 10.5530/irc.1.2.12

affiliations, focal areas and epistemological perspectives related to OHS. Significantly, this study extends traditional bibliometric techniques by applying STM to identify trends in OHS corporate reporting and disclosure practices.

Moreover, this research goes beyond conventional methods by utilizing the *findthoughts()* function. (Roberts *et al*., 2019) This allows for identifying documents that align closely with thematic constructs derived from the STM model. This innovation enables the researcher to discover specialized publications related to OHS disclosures, thus contributing to a deeper understanding of the current state and future direction of OHS corporate reporting. While prior studies have successfully applied STM in fields like marine transport, hospitality management and sentiment analysis, there remains a significant gap in the literature regarding the systematic use of ML and STM to analyze OHS-specific trends. This study addresses this gap by introducing a novel approach to analyzing OHS disclosure trends, offering theoretical and practical implications for corporate reporting and sustainability practices.

MATERIALS AND METHODS

Research outline

The study builds upon (Bai *et al*., 2021) by modifying its research process. The first phase involves collecting articles, including selecting the database and keywords to retrieve relevant scholarly articles. The 2nd phase focuses on exploring the dataset and the third phase, STM, encompasses text processing, topic selection, knowledge discovery and identifying research articles related to specific topics derived from the STM model (see Figure 1).

Search protocol

The Scopus database was chosen to collect scholarly articles. A keyword search was performed using the following keywords: TITLE-ABS-KEY (occupation* AND health AND safety OR ohs AND disclos* OR report*.) AND (LIMIT-TO (DOCTYPE, "ar") OR LIMIT-TO (DOCTYPE, "re") OR LIMIT-TO (DOCTYPE, "ch") OR LIMIT-TO (DOCTYPE, "cp")) AND (LIMIT-TO (LANGUAGE, "English")) A total of 956 scientific articles were collected from the period spanning from 1974 to 2024, covering 50 years of research papers.

Structural Topic Modelling

Topic modeling is an unsupervised algorithm that extracts latent themes from textual documents. These themes are learned based on the patterns and relationships within the text data without explicit supervision or predefined labels (Bai *et al*., 2021). Two commonly used methodologies for topic modeling are Latent Dirichlet allocation (LDA) and STM (Jelodar *et al*., 2019; Li and Lei, 2021).

STM offers several advantages over LDA (Bai *et al*., 2021). Firstly, STM allows for incorporating document-level covariates, which provide additional context and can improve the accuracy of topic modeling. For example, by including metadata about the author, publication date, or source of a document, STM can account for topic prevalence or word use variations based on these covariates. STM facilitates a better understanding of the relationship between topics and the underlying factors influencing them. Secondly, STM models give correlations between topics, providing deeper insights into how topics relate.

Additionally, STM allows for modeling variations in word distributions within a topic based on covariates and this means that the words associated with a particular topic may vary depending on the context provided by the covariates. This flexibility allows for more precise and context-specific topic modeling, leading to a better understanding of the data. Furthermore, STM provides the advantage of directly assessing the impact of covariates on topic prevalence or word use within a topic (Bai *et al*., 2021) and it provides more insights into how different factors impact the distribution of topics and the usage of words within those topics (Slade, 2016). (Figure 1) shows the 4 computational steps for STM modeling: text processing, selection of topics, knowledge discovery (Bai *et al*., 2021) and results.

Step1: Text processing

Inbuild text processor () function in the STM model, which will automatically create a corpus, convert to "Lower Case," "remove punctuation," "remove stop words," "remove numbers," "stemming," and Create output for the following procedure (Küsters and Garrido, 2020).

Step 2: Topic selection

It is critical to find the appropriate number of topics. However, no single, generally acknowledged method exists for determining the ideal quantity of topics for STM estimations. (Ravenda *et al*., 2022). The search K () function determines the ideal number of topics for the model. It combines statistical methods with human judgment to find the optimal balance. By integrating coherence scores and expert input, this approach ensures that the model accurately reflects the complexity of the data, enhancing its interpretability and usefulness (Roberts *et al*., 2019). We begin by applying rigorous statistical diagnostic tools to examine dynamic fluctuations in semantic coherence and other relevant metrics to assess the goodness of fit of STM estimates. These evaluations are conducted throughout a spectrum of topic quantities ranging from 3 to 25 (Figure 2).

The held-out likelihood score increases as the number of topics increases. The scores rise steadily from k=3 to k=11, but after k=11, they fluctuate. The score improves again at k=16, with k=19 providing the best model fit. However, semantic coherence tends to decrease as the number of topics increases, with fewer topics generally having higher coherence (Roberts *et al*., 2019)This does not fully capture the model's complexity. A better goodness

of fit correlates with lower residuals and higher lower bounds. We chose k=11 for further analysis, as it best fits the first phase. Beyond this, the model risks overfitting and generating redundant or meaningless topics. Thus, k=11 balances fit and semantic coherence, outperforming k=19 in topic quality. While semantic coherence is important, it only measures internal consistency (Mimno *et al*., 2011) We followed Roberts (2014, 2019) and Wang (2022) to finalize the optimal number of topics, use labelTopics() and plot() to ensure meaningful topic labeling.

After selecting k=11, we fit the model accordingly. The plot Models () function averages all topics from each model run and plots them numerically. The model with favorable qualities in both semantic coherence and exclusivity will be chosen, with models scoring in the upper right corner of the plot considered for further analysis. (Roberts *et al*., 2019)The plot Models () function also displays each topic's quality in the model (Figure 3).

Step 3: Knowledge discovery

Various methodologies can be used comprehensively to investigate the output of topic models, including exploring word associations with topics and examining the relationships between metadata and topics. (Roberts *et al*., 2019). Researchers frequently employ several key functions from the Structural Topic Model (STM) toolkit to obtain and visualize results, such as label Topics (), cloud (), topic Corr () and estimate Effect ().

The label Topics () function provides a detailed overview of the characteristics of each topic, including the highest probability words, FREX (Frequency×Exclusivity) words, lift words and score words (see Table 1). While the highest occurrence probability for words conditional on the topic offers insights into word association, certain common terms such as "study," "research," "management," and "data" may lack specificity and provide limited value for topic interpretation (Bai *et al*., 2021)The FREX metric is crucial to address this as it identifies more distinctive and meaningful associations between terms and topics. (Bai *et al*., 2021; Bischof and Airoldi, 2012; Roberts *et al*., 2019) By applying the harmonic mean, FREX balances the influence of frequency and exclusivity, ensuring a more refined and relevant assessment of a word's contribution to a specific topic domain.(Bischof and Airoldi, 2012). Equation 1 illustrates the FREX formula, as referenced by Bai *et al*. (2021) and W. Wang *et al*. (2023).

$$FREX_{k,v} = \left(\frac{\omega}{ECDF\left(\frac{\beta_{k,v}}{\sum_{j=1}^{K} \beta_{j,v}}\right)} + \frac{1-\omega}{ECDF(\beta_{k,v})} \right)^{-1} \quad \ldots\ldots\ldots\ldots 1$$

Equation 1: FREX metrics

In addition to examining word associations, the cloud () function generates word clouds for each topic, providing a visual representation of the most frequent terms (Figure 6). The word cloud highlights the theme classified within each topic, with words sized according to their probability of occurrence. This visualization can help quickly identify the dominant themes across topics.

Moreover, the topic Corr () function allows for the exploration of topic correlations, shedding light on how topics are related to each other within the model. Such correlations can reveal underlying thematic linkages that may not be apparent through isolated topic analysis.

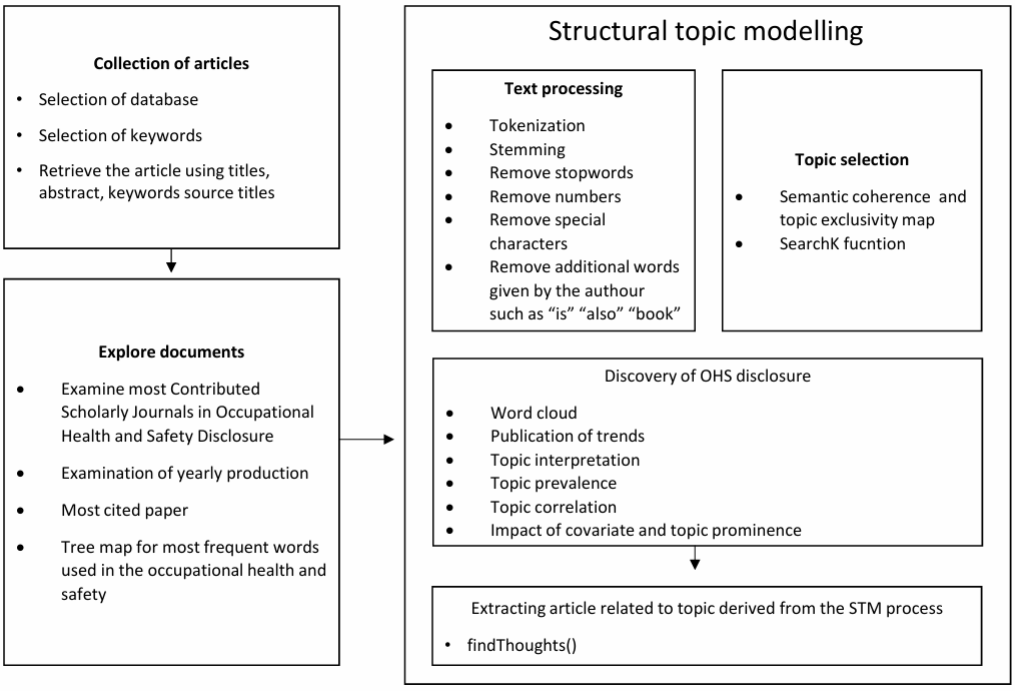


Figure 1: Research outline.

The estimate Effect () function enables researchers to examine the impact of metadata (such as publication year, region, or author affiliation) on topic prevalence. By doing so, the function provides insights into how the prominence of certain topics evolves over time or varies across different contexts. This study also leverages bibliometric analysis to assess publication trends, such as the most frequently cited journals and the most significant contributing journals within the domain of OHS disclosure. This analysis complements the STM results, providing a comprehensive understanding of the scholarly landscape related to OHS reporting.

RESULTS AND DISCUSSION

Most Contributed Scholarly Journals in Occupational Health and Safety Disclosure

Cumulative scholarly article production is a key metric for identifying the most influential journals in the field. Appendix 1 highlights the top 20 journals contributing significantly to OHS reporting and disclosure research. The Journal of Cleaner Production leads with 23 articles, representing 3% of the total output. Safety Science and Sustainability (Switzerland) follow, each with 19 articles, making up 2.12% of the total. Notably, out of over 704 journals identified, most have contributed only one article, while 34 journals have published more than three articles each

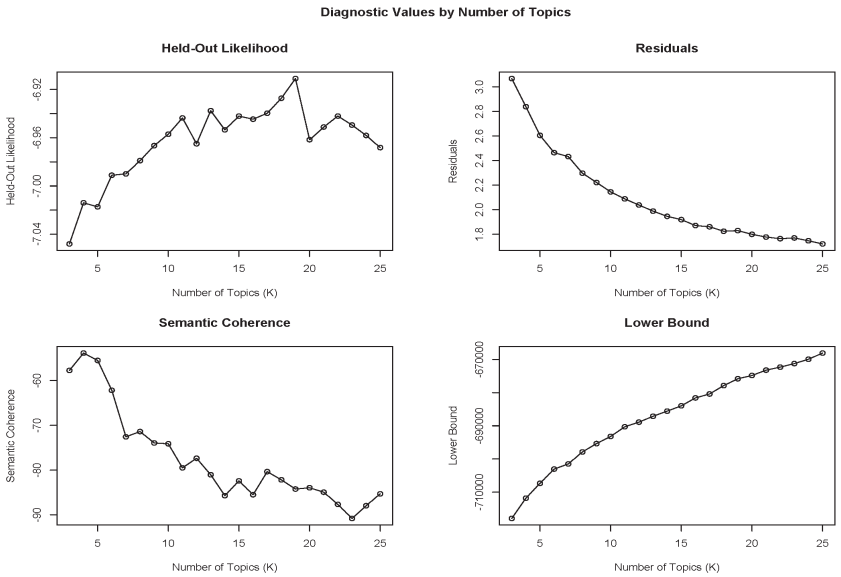


Figure 2: Determination of number of topics.

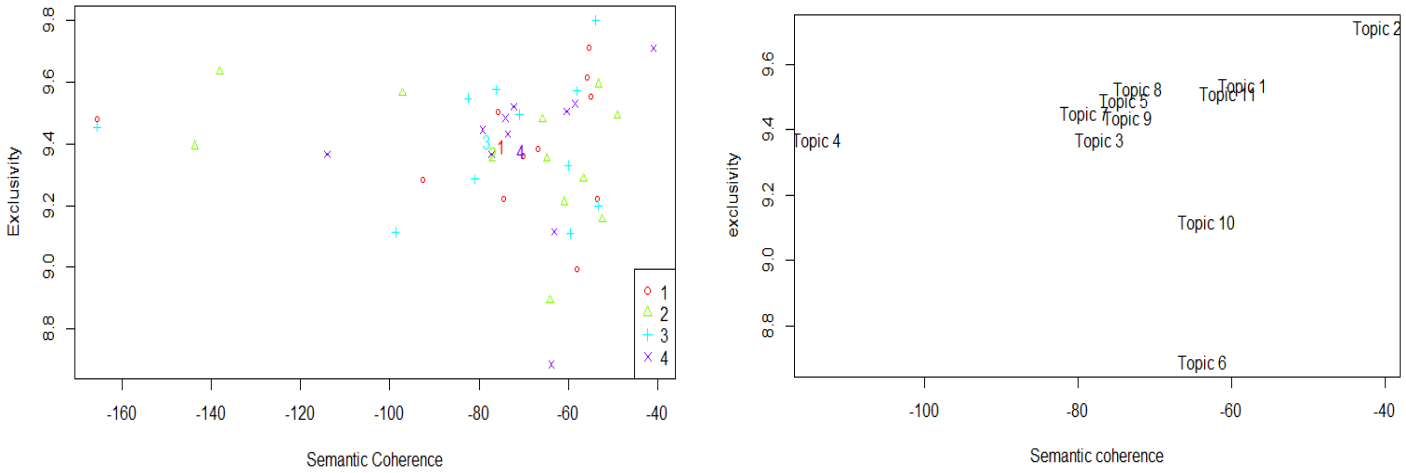


Figure 3: Semantic coherence exclusivity and topic quality.

Overall Publication Trends

Figure 4 shows the trend in annual scientific production on occupational health and safety from 1974 to 2024, measured by the number of documents published each year. From 1975 to 1990, production was low and stable, with fewer than 20 documents annually. The early 1990s marked the start of an upward trend, peaking around 1995, followed by a slight decline and a subsequent rise in the late 1990s. The 2000s saw a gradual increase in document production, with fluctuations but a general upward trajectory. This trend accelerated sharply around 2010, leading to a significant rise in annual publications. The most notable surge occurred in the early 2020s, peaking at over 100 documents in 2022 before a decline. Overall, the data reflect substantial growth in occupational health and safety research, particularly from the 2000s onward, with a peak in the early 2020s.

Most Cited Paper

Appendix 2 highlights the most cited articles, including "Corporate Social and Environmental Reporting: A Review of Literature and a Longitudinal Study of the UK" by Gray *et al.* (1995), published in the Accounting, Auditing and Accountability Journal. The article explores integrating OHS concerns into corporate social and environmental reporting, focusing on the UK. It emphasizes the importance of OHS reporting for meeting stakeholder expectations and regulatory requirements. It examines trends in OHS reporting over time, its impact on corporate reputation and performance and challenges like data collection and standardization. The next most cited work is Patton's (2016) paper, "Our Future: A Lancet Commission on Adolescent Health and Well-Being."

Most Frequent Word

The analysis of scholarly articles highlights the prevalence of specific key terms in their abstracts. The most frequently occurring words include "health," "social," "safety," "research," "study," "CSR" (Corporate Social Responsibility), "management," "work," "environmental," "corporate," "information," "companies," "occupational," "sustainability," and "rights."

To visually represent the frequency distribution of these terms within the corpus, the Tree map () function was used. This visualization provides a detailed depiction of the relative occurrence of each term, offering valuable insights into the predominant themes and focal points within the scholarly discourse on occupational health and safety disclosure (Figure 5).

Topic Solution, Interpretation and Topic Prevalences

Topic labeling can often be simplified by selecting words with the highest probabilistic association with a given topic. However, this approach may limit the quality of the labels. To address this issue, Bischof and Airoldi (2012), introduced the FREX metric, which combines word frequency within a topic and topic exclusivity. FREX is calculated as the harmonic mean of a word's rank by probability within the topic and its rank by the distribution across topics (Bai *et al.*, 2021). Previous literature reviews using Structural Topic Modeling (STM) have applied both metrics to enhance the accuracy of topic labeling (Bai *et al.*, 2021; Das *et al.*, 2017; Kuhn, 2018).

A word cloud for each topic is generated using the cloud () function (Figure 6), which visualizes words based on their probability of occurrence within the topic. Words with a higher probability appear in larger font sizes, indicating their prominence in the topic. Researchers often use label Topics () and cloud () functions to determine topic labels through expert judgment.

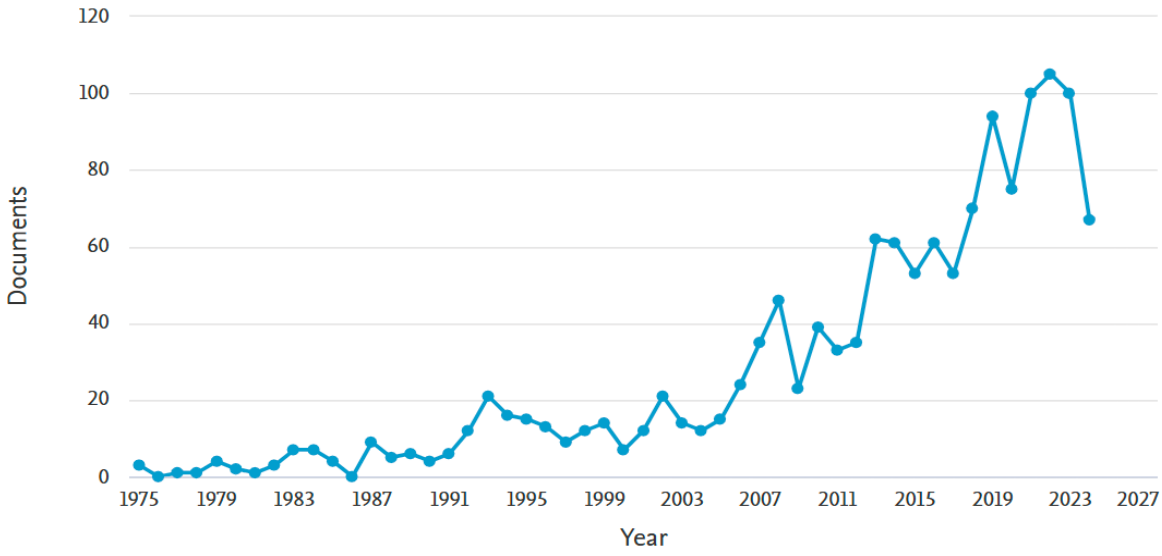


Figure 4: Annual production of scholarly scientific articles.

Table 1: **Topic labelling and topic proportion.**

Topic	Topic label	Representing words	mean
Topic 1	OHS Auditing in Construction Supply Chains	Highest Prob: use, study, research, manag, data, construct, industri FREX: construct, chain, suppli, implement, audit, techniqu, data.	10%
Topic 2	Sustainable Business Practices	Highest Prob: social, sustain, csr, corpor, respons, compani, develop FREX: csr, corpor, sustain, social, respons, mine, stakehold.	12%
Topic 3	Healthcare Accessibility and Support for Mental Health and Disabilities	Highest Prob: health, care, profession, peopl, mental, support, communiti FREX: sex, care, privaci, disabl, mental, peopl, access.	8%
Topic 4	Pharmaceutical Hazard Management	Highest Prob: food, research, product, consum, medic, health, receiv FREX: food, grant, pfizer, honoraria, speaker, nanoparticl, hia.	2%
Topic 5	Regulatory Frameworks and Global Rights	Highest Prob: right, book, global, human, regul, state, reserv FREX: actor, law, cybersecur, privat, regulatori, reform, state.	10%
Topic 6	Health Studies and Safety Measures	Highest Prob: studi, use, health, result, exposur, safeti, patient FREX: ipv, self-report, preval, smoke, vaccin, injuri, stress.	7%
Topic 7	Environment Risk Assessment	Highest Prob: environment, chang, risk, system, assess, climat, sector FREX: lean, pollut, climat, wast, energi, ocean, plastic.	7%
Topic 8	Occupational Safety and Health Regulations	Highest Prob: safeti, health, occup, worker, risk, hazard, chemic FREX: chemic, hazard, osha, avail, abstract, accid, safeti.	14%
Topic 9	Employee Well-being and Workplace Dynamics	Highest Prob: employe, work, studi, relationship, effect, workplac, organiz FREX: mediat, organiz, employe, compens, negat, creativ, employees.	8%
Topic 10	Promoting Occupational Health and Safety Education	Highest Prob: book, research, student, provid, social, chapter, ethic FREX: edit, student, handbook, tourism, sociolog, reader, chapter	13%
Topic 11	Corporate Reporting and Disclosure Practices	Highest Prob: report, disclosur, inform, compani, studi, paper, indic FREX: annual, sdgs, report, gri, sdg, disclosur, legitimacy.	8%

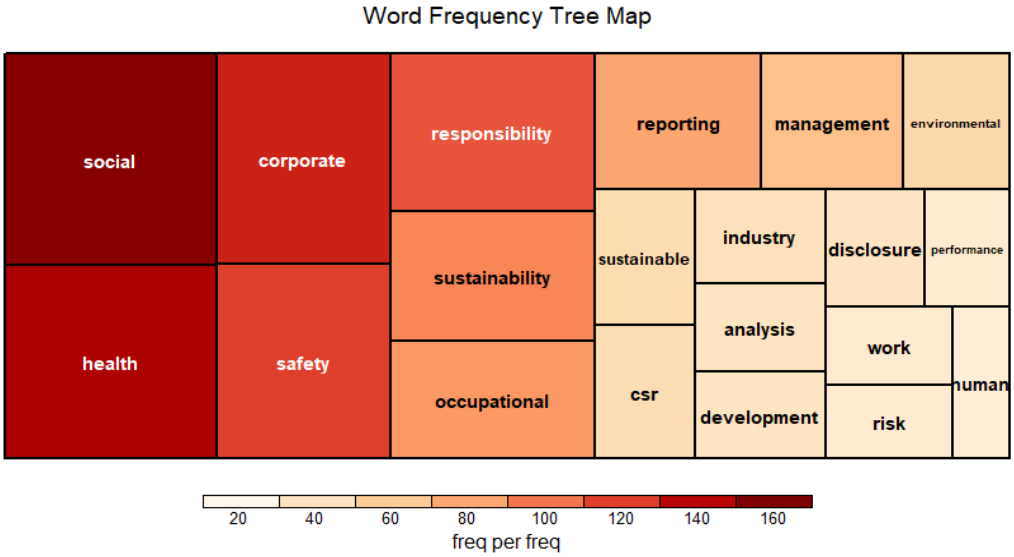
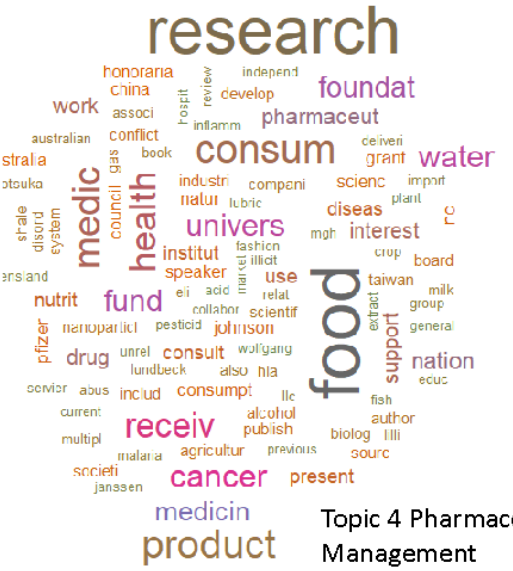


Figure 5: word frequency tree map.

Topic 1 OHS Auditing in Construction Supply Chains

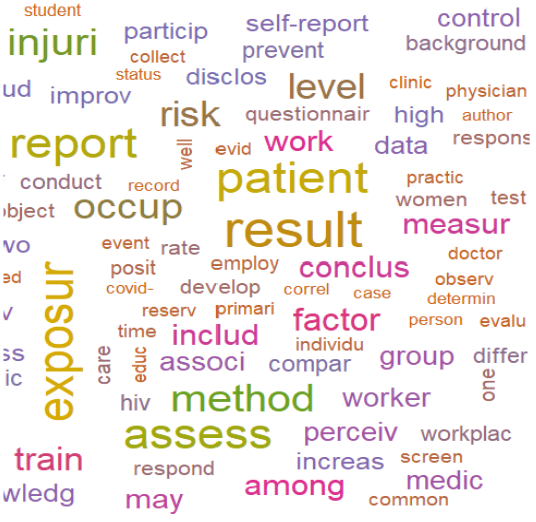
Topic 2 Sustainable Business Practices

Topic 3 Healthcare Accessibility and Support for Mental



Topic 4 Pharmaceutical Hazard Management

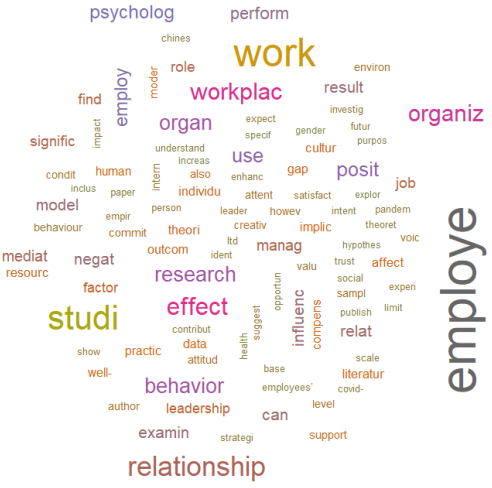
Topic 5 Regulatory Frameworks and Global Rights



Topic 6 Health Studies and Safety Measures

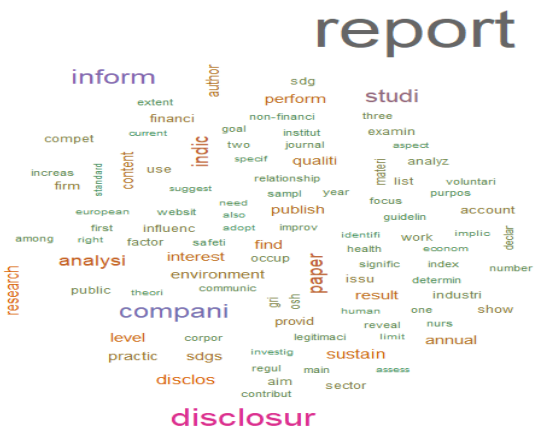
Topic 7 Environment Risk Assessment

Topic 8 Occupational Safety and Health Regulations



Topic 9 Employee Well-being and Workplace Dynamics

Topic 10 Promoting Occupational Health and Safety Educatior



Topic 11 : Corporate Reporting and Disclosure Practices

Figure 6: Word cloud- the visual representation of topics.

Table show that most articles (14%) focus on occupational safety and health regulation. Promoting occupational health and safety education is closely followed, accounting for 13% of the research. In contrast, the least researched area is Pharmaceutical Hazard Management, with only 2% of articles dedicated to this topic.

Topic, one addresses the OHS Auditing in Construction Supply Chains; the highest frequency words are "construction" and "industry," and FREX words are "chain," "supplies," "auditing," and "techniques." Topic two and Topic eleven discuss the corporate role in OHS; topic two addresses issues related to sustainable business practices with the high-frequency words "social", "sustainability", "CSR", "corporate", "response", "companies" and the FREX words are "CSR", "corporate", "sustain", "social", "response", "mine", "stakeholder" furthermore, topic 11 related to Corporate Reporting and Disclosure Practices (8%). The highest frequency words are "report", "disclosure", "inform", "company", "studio", "paper", "indic" FREX: "annual", "sdgs", "report", "gri", "sdg", "disclosure", "legitimacy". Topic three consists of the highest frequency words such as "health", "care", "profession", "people", "mental", "support" and "communities" FREX words are "sex", "privacy,", "disable", "access", all together we can label the topic three as healthcare accessibility and support for mental health and disabilities.

Topic four is related to Pharmaceutical Hazard Management with the highest frequency of "food", "research", "product", "consumer" and "medical," and the FREX words are "grant", "Pfizer", "nanoparticle,", "HIA", this is least researched area in the model with 2% of research has done on this field. Topics five and eight address the common area of regulation frame related to OHS; the topic addresses research related to the regulatory framework and global rights. The highest frequency words are "right," "global", "human", "regular", "state", "reserve," and FREX words are "actor", "law", "cyber secure", "privacy,", "regulation", "reform", "state" and topic 8 is about Occupational Safety and Health Regulations with high-frequency words are "safety", "health", "occup", "worker", "risk", "hazard", "chemic" FREX: "chemic", "hazard, "OSHA", "avail", "accid", "safety".

Topic six is about health studies and safety measures; the highest frequency words are "health", "exposur", "safeti, "patient," and FREX: "ipv", "self-report", "preval", "smoke", "vaccin", "injuri", "stress". Topic seven is related to environmental risk assessment with higher frequency word such as "environment", "chang", "risk", "system", "assess", "climate", "sector", FREX: "lean", "pollut", "climate", "waste", "energi", "ocean", "plastic". Topic Nine addresses Employee Well-being and Workplace Dynamics hight highest frequency words are "employe", "work", "studi", "relationship", "effect", "workplace", "organiz" FREX: "mediat", "organiz", "employe", "compens", "negat", "creativ", "employees".

Topic ten is about Promoting Occupational Health and Safety Education; the highest frequency words are "book", "research", "student", "provide", "social", "chapter" and "ethic" FREX: "edit", "student", "handbook", "tourism", "sociology", "reader", "chapter". A key learning objective for sustainability that contributes to creating a safe environment (Moyo *et al*., 2022).

Topic correlation

Figure 7 shows the correlation between topics. Topic 1, "OHS Auditing in Construction Supply Chains," is closely linked with Topic 2, "Sustainable Business Practices," and Topic 11, "Corporate Reporting and Disclosure Practices." This suggests a connection between auditing in construction supply chains and broader sustainability efforts, highlighting the importance of transparent reporting in promoting sustainable practices. Additionally, Topic 5, "Regulatory Frameworks and Global Rights," is strongly related to Topic 10, "Promoting Occupational Health and Safety Education," emphasizing the link between regulatory frameworks and educational initiatives to enhance awareness and compliance, especially in a global context. Similarly, Topic 4, "Pharmaceutical Hazard Management," and Topic 7, "Environmental Risk Assessment," are correlated with Topic 5, underscoring the broad scope of regulatory frameworks that cover areas like pharmaceutical hazard management and environmental risk assessment, all tied to global rights and standards.

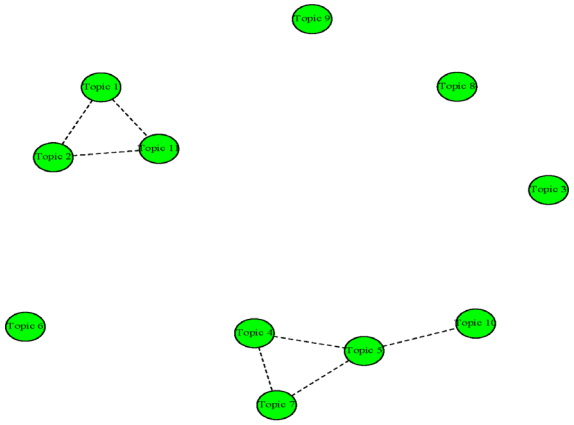
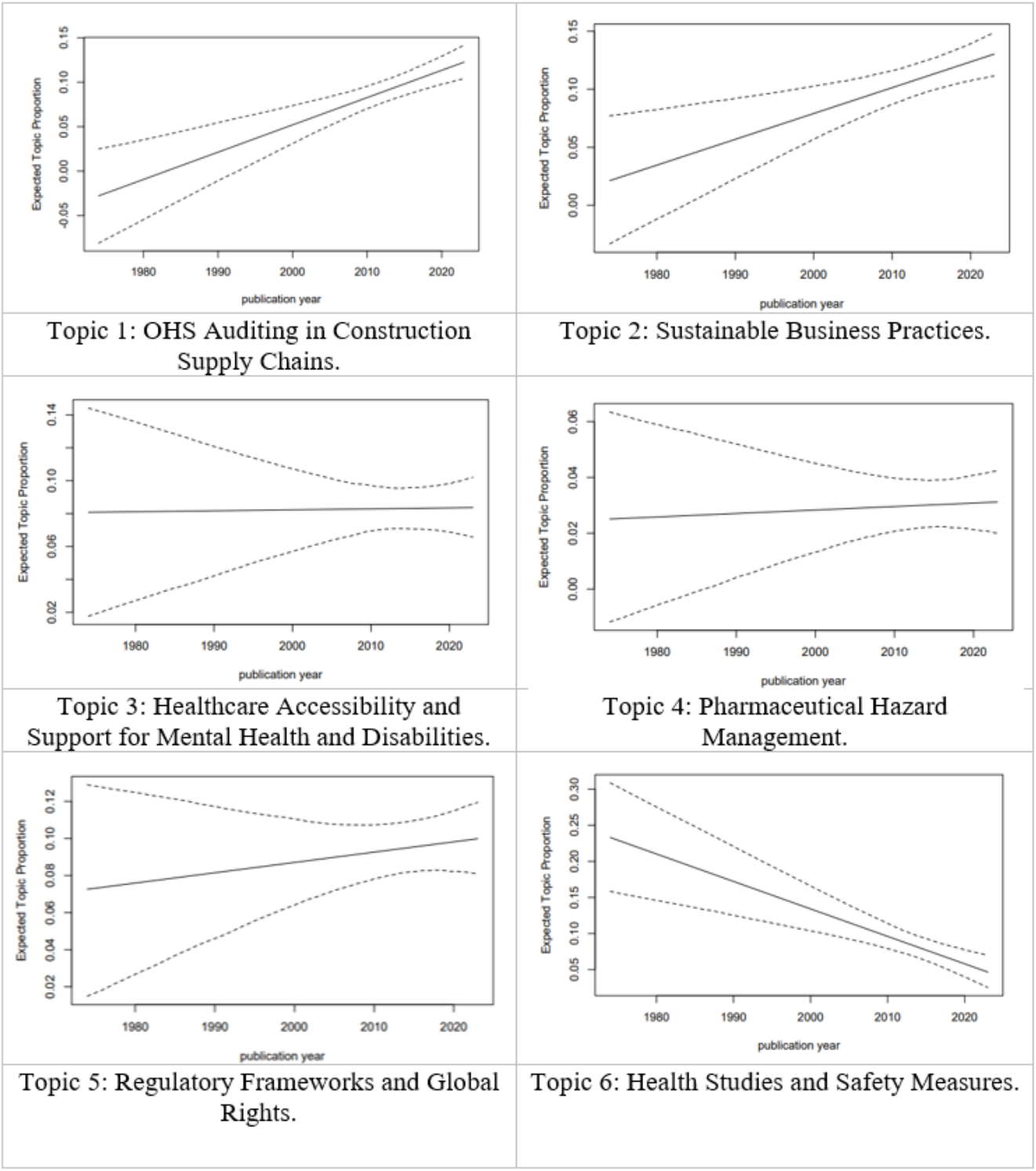


Figure 7: Topic correlation.

Topic Trend Analysis

The impact of publication year on topic prominence is a key aspect of using STM in academic research. STM enables the analysis of interactions between variables like publication year and topics of interest. By including publication year as a covariate, researchers can track and compare the prevalence of topics over time, offering insights into their temporal dynamics.

Figure 8 illustrates these dynamics, showing trends in various topics over the years. Topics like "OHS Auditing in Construction Supply Chains," "Sustainable Business Practices," "Environmental Risk Assessment," "Regulatory Frameworks and Global Rights," "Employee Well-being and Workplace Dynamics," "Promoting Occupational Health and Safety Education," and "OHS Corporate Reporting and Disclosure Practices" have shown an upward trend.



Topic 1: OHS Auditing in Construction Supply Chains.

Topic 2: Sustainable Business Practices.

Topic 3: Healthcare Accessibility and Support for Mental Health and Disabilities.

Topic 4: Pharmaceutical Hazard Management.

Topic 5: Regulatory Frameworks and Global Rights.

Topic 6: Health Studies and Safety Measures.

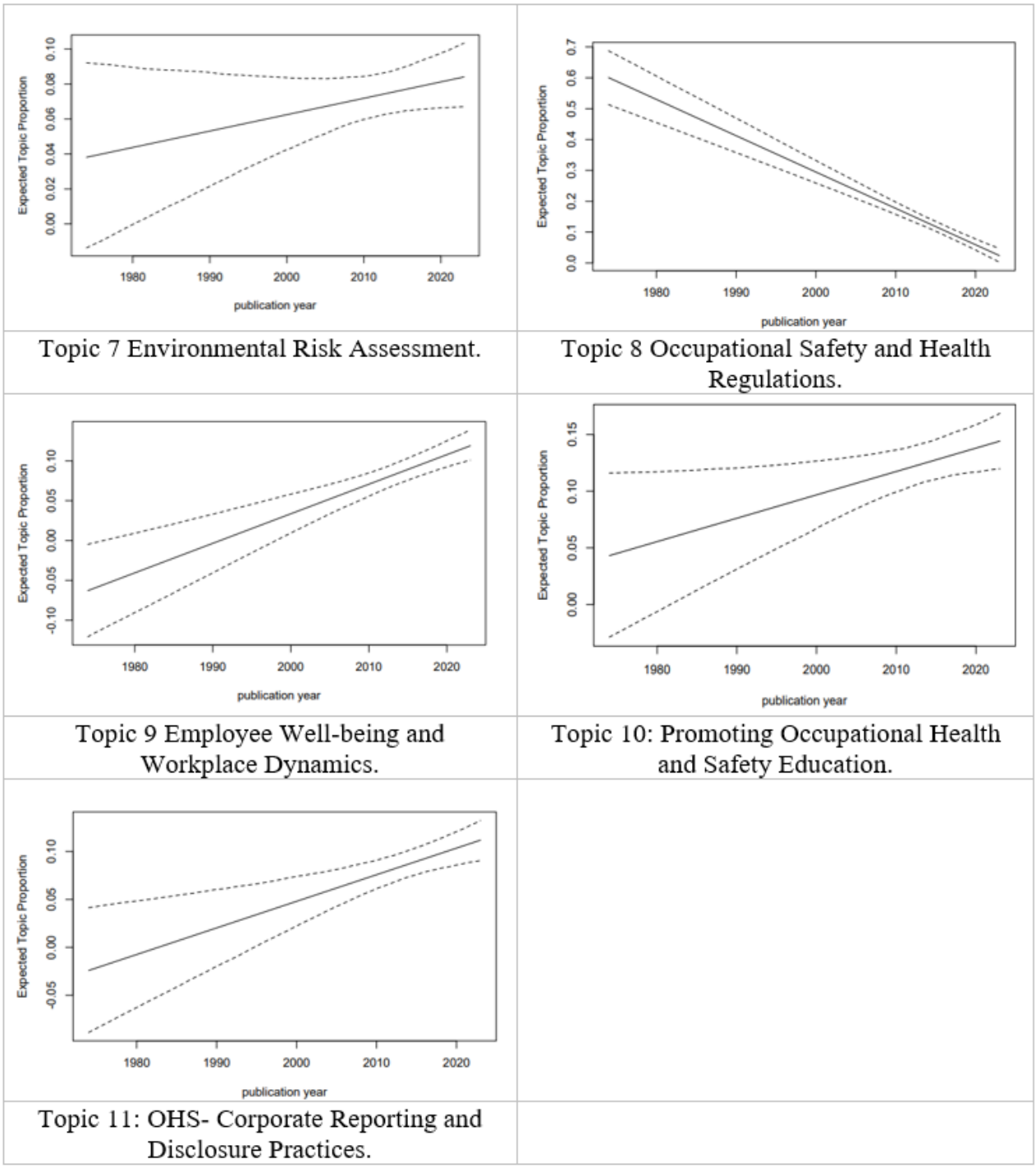


Figure 8: topic trends.

In contrast, research focus on "Occupational Safety and Health Regulations" and "Health Studies and Safety Measures" has declined over the analyzed period. This shift suggests that earlier OHS research focused on regulations and safety measures, but as stricter OHS laws were implemented, interest has shifted toward newer topics within the field.

Exploring papers related to topics derived from the STM process

Roberts (2019) used the find thoughts () function to examine documents highly associated with topics and the researcher used the same function to find papers highly associated with the topics, resulting in a niche result. Topic 11 in the topic solution is

Table 2: Summary of OHSD article derived from the STM process.

Citation	Summary of Article	Sample	Theory	Measure	Major Findings
(Chan, 1979a)	This is the first scientific study to examine OHS disclosure in annual reports of Fortune 500 companies through content analysis.	Fortune 500	N/A	Extent and nature of OHS disclosure.	The reporting of workplace injuries and illnesses needed to be more uniform. Existing social disclosure in OHS needs more data to evaluate enterprise performance.
(Kawashita *et al.*, 2005)	The study aims to analyze corporate management's viewpoint on occupational safety and health in Japanese companies through CSR-related reports.	Japanese companies	N/A	Extent of OHS disclosure.	Disclosure levels vary by industry; companies with more employees disclose more. OHS is a minor disclosure item compared to other segments like the environment and society.
(Montero *et al.*, 2009)	Explores the presence of OHS concerns in CSR and the role of CSR in fostering a safety and health culture through content analysis of various CSR initiatives in Europe.	N/A	Stakeholder theory	N/A	OHS is key in CSR reporting, but its development varies across instruments. Integration of CSR frameworks with OHS can enhance practices.
(Koskela, 2014)	Explores OHS reporting in CSR reports through content analysis of three companies from different industries in Finland.	Three companies-Finland	N/A	Extent of OHS disclosure	Occupational safety was the most reported item in OHS disclosures, with variations among companies.
(Searcy *et al.*, 2016)	Analyzes work environment disclosure indicators in CSR using content analysis in Canadian companies, including top CSR leaders and randomly selected companies from the Toronto Stock Exchange.	100 Canadian companies	N/A	N/A	Top companies report 657 work environment indicators in CSR; safety indicators emphasized, less focus on psychosocial issues like work-related stress.
(Cahaya *et al.*, 2017)	Examines factors influencing voluntary OHSD in the annual reports of 223 listed Indonesian companies using a GRI-aligned index.	223 Indonesia-listed companies.	Coercive Isomorphism	Extent of OHS disclosure	Low disclosure levels, industry profile and MNC operations significantly impact OHSD. ROA has a positive association, while board members have a negative association.
(Nagata *et al.*, 2017)	Explores OHS trends in CSR by industry sector and company size in Japanese listed companies.	Japanese listed companies.	N/A	Descriptive	OHS reporting in CSR is increasing, with larger companies reporting more extensively.
(Evangelinos *et al.*, 2018a)	Examines voluntary OHSD reporting in top corporations across oil and gas, chemical, aviation and construction industries.	40 sample companies from Forbes World's Big Companies.	N/A	Extent and quality of OHS disclosure.	Comprehensive management approach to OHS, but reporting needs more depth beyond basic metrics. Disclosure levels vary across industries.

Citation	Summary of Article	Sample	Theory	Measure	Major Findings
(Kumar *et al.*, 2018)	Critically examines the sustainability reporting practices of the top 10 Indian banks using a GRI-G4-based persuasive communication framework.	Top 10 Indian banks.	Stakeholder theory	Extent and quality of SR.	Inadequate disclosure and transparency in SR among India's top banks. Weak focus on stakeholder involvement.
(Tsalis *et al.*, 2018a)	Examines firms' accountability for OHS and the influence of institutional factors on OHS disclosure using content analysis and a benchmark scoring framework.	Companies selected from the GRI database	Accountability and Institution theory	Extent and quality of OHS disclosure	Quality and extent of OHS disclosure are superficial, with many firms providing injury rate info to protect social reputation. OHSAS certification enhances disclosure.
(Rahman *et al.*, 2019)	Examines trade union views on OHS disclosure and whether it meets their expectations through a mixed-method approach, including 472 samples from trade unions and 40 annual reports for content analysis.	472 Indonesia's sample companies.	Stakeholder theory.	Extent of OHS disclosure.	Trade unions see OHS disclosure as crucial, highlighting an information gap between trade unions and companies.
(Fonseca and Carvalho, 2019)	Examines sustainability practices of 235 Portuguese firms with QEOHS certificates.	235 Portuguese firms.	N/A	Disclosure on SDG.	Sustainable practices disclosure influenced by business volume, UN Global Compact Network Portugal membership and corporate website disclosure levels.
(Păun *et al.*, 2020)	Examines the influence of the recent legislative framework (EU Directive 2014/95/EU) on non-financial disclosure in Romania, focusing on ownership structure, market share and field of activity.	35 Romanian companies.	N/A	Extent of OHS disclosure.	Company size shows no significant relationship with OHS disclosure, but turnover does. Media exposure and market share positively influence disclosure levels.
(Roland *et al.*, 2020a)	Investigates the determinants of OHS disclosure quality in Romanian companies.	Romanian companies	N/A	Descriptive	OHS disclosure is influenced by corporate debt, age and turnover.
(Mariappanadar *et al.*, 2021)	Using a mixed research design, examining the quality of OHS and well-being disclosure in sustainability reports across industries and countries.	Forbes list companies	Institutional theory	Quality of OHS disclosure.	Limited focus on GRI reporting for OHS and well-being. Reporting driven more by legal requirements and social legitimacy than industry or market type.

Citation	Summary of Article	Sample	Theory	Measure	Major Findings
(F. H. Ali *et al.*, 2021)	Evaluates OHS practices in Pakistani manufacturing companies using an exploratory mixed design, with content analysis, benchmarking and statistical techniques applied to 181 firms' annual reports.	181 Pakistani companies	Legitimacy theory	Extent and quality of OHS disclosure.	Inadequate OHSD accountability index scores show significant differences in company-specific disclosures, with only 35% disclosing any OHS info.
(Mavroulidis *et al.*, 2022)	Explores OHS reporting in multinational construction companies' CSR reports.	Multinational construction companies listed on the GRI database.	Stakeholder theory	Extent of OHS disclosure	A limited range of OHS issues disclosed; larger companies disclose more and ISO 18001 certification boosts transparency.
(Alves and Ramos, 2022b)	Provides insights into the quality of OHS disclosures among EU companies, focusing on key determinants such as regional differences, certification of OHS management systems and external assurance.	European Union companies.	Institutional stakeholder theory	Extent and quality of OHS disclosure.	The average score was 12/30 points for OHS disclosure quality, which was significantly influenced by OHS management system certification.
(Shimizu *et al.*, 2022a)	Studies OHS disclosure in CSR and integrated reports, comparing changes between 2012 and 2022 by industry and company size in Japanese companies.	Japanese companies	N/A	Descriptive	A positive relationship between company size and OHS disclosure; the secondary industry has higher disclosure scores than tertiary sectors.
(Gardiner, 2022)	Explores work health and safety in the top 100 listed companies on the Australian Stock Exchange, assessing the impact of mandatory reporting on OHS reporting quality.	Top 100 ASX-listed companies.	Stakeholder and legitimacy theory.	Quality of OHS disclosure.	Few companies report WHS metrics, with hazard-prone industries showing higher disclosure levels. Voluntary disclosure was found inadequate for protecting workers.
(Y. Wang *et al.*, 2022)	Examines OHS performance in listed Chinese companies through a mixed-method approach, including quantitative data from questionnaires and qualitative data from CSR, SR and employee-related reports.	69 listed energy companies in China.	N/A	Extent of OHS disclosure.	Low OHS management level in the Chinese energy industry; growing trends in reporting observed.
(Guo *et al.*, 2022)	Using a game theory framework, examining how Chinese family firms perform in employee health and safety through information disclosure.	Chinese A-share listed companies.	Game theory	N/A	Family firms are less likely to prioritize employee health and safety, showing inconsistency in reporting. Legislative changes needed to improve reporting.

Citation	Summary of Article	Sample	Theory	Measure	Major Findings
(Rikhotso *et al.*, 2022a)	Examines how South African manufacturing and utility companies use CSR disclosures to report occupational health hazards without a national disease surveillance system.	South African companies.	Institution theory	Descriptive	With company variations, OHS is the least reported social aspect in CSR disclosures. Noise-induced hearing loss is the most reported occupational disease.
(Fotiadis *et al.*, 2023a)	Explores OHS disclosure in the UK construction industry, assessing trends in reporting.	Top UK construction companies	Stakeholder, legitimacy and institutional theories.	Extent and quality of OHS disclosure.	Inadequate OHS disclosure in UK construction industry reports, with no standardized practices. Some key issues, like young workers in supply chains, are underreported.
(Zhang *et al.*, 2023a)	Examines the impact of work safety information disclosure on corporate performance using a panel data approach, including 144 companies from high-risk industries.	144 high-risk industries companies (China).	Stakeholder theory.	Extent and quality of OHS disclosure.	OHS disclosure positively influences financial performance and social reputation but is negatively influenced by institutional investor shareholding.
(Park and Kim, 2023)	Explores the relationship between corporate characteristics and workplace injury rates across different industries in Korea, applying quantitative analysis to HR data and annual reports.	Korean companies	Human capital theory	N/A	More full-time employees and skilled workers reduce injury rates. Wage increases have varying effects depending on industry, with hazardous industries showing more significant impacts.
(Oakman *et al.*, 2024)	The quality and extent of OHS reporting in Australian companies are evaluated through a policy scorecard applied to OHS and non-financial reports.	Top 50 ASX-listed companies	Stakeholder theory	Quality of OHS disclosure	High-risk sectors score higher on OHS reporting; stakeholder pressure drives improved OHS reporting practices. Reporting gaps exist in non-high-risk sectors.

Note: The researchers used a sample size of 150 for the findthoughts () function to identify papers related to Topic 11. After reviewing the summaries of these papers, the relevant information was compiled and is presented here.

associated with OHS-corporate reporting and disclosure practices and the results in (Appendix 3) show the scientific articles related to this topic. Research using this function to explore the relevant paper related to OHS-corporate reporting and disclosure is shown in (Table 2) though2<- find Thoughts (select Model, texts=data$Title, *n*=20, thresh=.25, topics=11) though2.

Thematic evaluation of occupational health and safety disclosure

OHS disclosure has evolved, with early studies like Chan (1979b) highlighting the need for uniformity in reporting within Fortune 500 companies. Initial research focused on basic metrics such as workplace injuries but lacked depth. Geographical and industry-specific studies, such as those by Kawashita *et al.* (2005) and Nagata *et al.* (2017), demonstrated that OHS disclosure varies by industry and company size, with larger firms and high-risk industries like manufacturing disclosing more. In contrast, Japanese firms were found to report less OHS data compared to other CSR elements. Research by Rahman *et al.* (2019) on Indonesian trade unions and Evangelinos *et al.* (2018b) on multinational corporations revealed significant gaps between the union and corporate OHS communication, with reporting often lacking depth despite detailed management approaches. OHS is increasingly integrated into broader CSR frameworks, as studies by Montero *et al.* (2009), Searcy *et al.* (2016) and Kumar *et al.* (2018) indicate. However, it is often secondary to other dimensions like environmental sustainability. Legal requirements, rather than voluntary sustainability initiatives, frequently drive OHS reporting, as Mariappanadar *et al.* (2021) pointed out. The

table showcases the evolution of OHS disclosure across industries, countries and frameworks, reflecting a trend towards integrating OHS into CSR and sustainability practices. Larger firms, certified companies and those in high-risk industries tend to disclose more OHS-related information, driven by both stakeholder pressure and legal requirements. However, gaps in standardization, voluntary reporting and sector-specific challenges continue to hinder uniform reporting despite its positive impact on financial performance and corporate reputation. Various factors influence OHS disclosure, including industry profile, company size, MNC operations and financial performance, as noted by Cahaya *et al.* (2017) and Zhang *et al.* (2023b) while board involvement and corporate debt may negatively impact transparency. High-risk sectors like construction show improved transparency due to stakeholder pressure, according to Fotiadis *et al.* (2023b) and Oakman *et al.* (2024). Stakeholder and institutional influences also play a role in disclosure practices, with studies by Tsalis *et al.* (2018b) and Roland *et al.* (2020b) suggesting that certifications like OHSAS 18001 enhance transparency. Alves and Ramos (2022a) further explored how certifications and external assurance improve disclosure quality in European companies. The distinction between voluntary and mandatory OHS reporting is critical, as studies like Gardiner (2022) and Oakman *et al.* (2024) highlight, with mandatory standards generally driving more comprehensive disclosures. Health-related OHS issues are also industry-specific, with studies like Park and Kim (2023) and Rikhotso *et al.* (2022b) focusing on noise-induced hearing loss and injury rates in sectors such as mining and manufacturing. OHS disclosure positively impacts financial performance and corporate reputation, as Zhang *et al.* (2023b) found, though factors like institutional investor shareholding can negatively influence it. Despite these developments, challenges remain, including inconsistent reporting practices and focus on injury rates rather than broader OHS indicators, as discussed by Shimizu *et al.* (2022b) and Ali *et al.* (2021).

CONCLUSION AND AREA OF FURTHER RESEARCH

An intensive study on OHS reporting and disclosure has been conducted. The sheer number and diversity of scholarly articles in the OHS disclosure make it time-consuming and challenging to identify the significant research themes and trends accurately. This review paper focuses on OHS reporting and disclosure of scholarly published articles from 1974 to 2024 in the journal indexed on the Scopus database. This study found 956 articles focused on OHS disclosure and reporting, most published between 2020 and 2022.

This review paper delves into OHS reporting and disclosure, employing a methodologically rigorous approach to analyze a vast array of literature spanning nearly five decades. Leveraging advanced computational techniques, particularly STM, the study uncovers latent themes and trends within the OHS landscape. "OHS regulation" is the predominant theme and noteworthy relationships have been identified. Firstly, a significant connection exists between "OHS auditing in the construction supply chain," sustainable business practices and OHS corporate reporting and disclosure practices. This relationship highlights the integration of safety audits with broader corporate sustainability and transparency efforts. Secondly, promoting OHS education is closely linked to the regulatory framework and global rights, underscoring the necessity of educational initiatives to support compliance and protect workers' rights. Thirdly, pharmaceutical hazard management is tied to regulatory frameworks, global rights and environmental risk assessment, indicating a comprehensive approach to managing health risks within the pharmaceutical industry.

The emerging topics in OHS include "OHS corporate reporting and disclosures," "employee well-being and workplace," "sustainable business practices," and "OHS auditing in the construction supply chain." Conversely, there is a noticeable decline in interest in topics such as "health studies and safety measures," "OHS regulation," "pharmaceutical hazard management," and "healthcare accessibility and support for mental health and disabilities." This shift reflects evolving priorities and focal points within the OHS field. The findthought function of the STM package assists researchers in identifying articles highly associated with specific topics, such as OHS corporate reporting and disclosure. Through this process, the researcher has pinpointed 27 highly relevant articles to OHS in corporate reporting.

ACKNOWLEDGEMENT

Thank you to Sudhakar from Pondicherry University for his help coding the Structural Topic Modeling (STM) tool, which made this study successful. I also thank Pondicherry University for giving access to Scopus, which was essential for data collecting and analysis. Finally, I thank my mentors, colleagues, and Pondicherry University's academic environment for inspiring and enabling this effort.

CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

DECLARATION

We have not received any financial assistance from any agency and this is entirely independent work for knowledge enhancement in occupational health safety disclosure studies.

ABBREVIATIONS

STM: Structural Topic Modeling; **OHS:** Occupational Health and Safety; **CSR:** Corporate Social Responsibility; **OHSD:** Occupational Health and Safety Disclosure; **ML:** Machine

Learning; **GRI:** Global Reporting Initiative; **K:** Topics; **FREX:** Frequency×Exclusivity; **topic Corr:** Topic Correlation.

REFERENCES

Abdul Hamid, S., Leman, A. M., Goolamally, N., & Afizi Shuaib, N. (2020). Occupational safety and health leadership and performance in Malaysian industries. IOP Conference Series: Materials Science and Engineering, 864(1), Article 012033. https://doi.org/10.1088/1757-899X/864/1/012033

Ali, F., Park, E., Kwon, J., & Chae, B. (2019). 30 years of contemporary hospitality management. International Journal of Contemporary Hospitality Management, 31(7), 2641–2665. https://doi.org/10.1108/IJCHM-10-2018-0832

Ali, F. H., Liaqat, F., Azhar, S., & Ali, M. (2021). Exploring the quantity and quality of occupational health and safety disclosure among listed manufacturing companies: Evidence from Pakistan, a lower-middle income country. Safety Science, 143, Article 105431. https://doi.org/10.1016/j.ssci.2021.105431

Alves, C., & Ramos, M. C. (2022a). Occupational health and safety: Quality and determinants of its disclosure in sustainability reporting. Revista de Administração de Empresas, 62(5), Article e2021-0101. https://doi.org/10.1590/s0034-759020220503x

Azzouz, L., & Jack, A. (2020). Benchmarking the sustainability reporting of high-speed railways (HSRs): Towards a state-of-the-art benchmarking and reporting framework for HSRs. Journal of Cleaner Production, 250, Article 119505. https://doi.org/10.1016/j.jclepro.2019.119505

Bai, X., Zhang, X., Li, K. X., Zhou, Y., & Yuen, K. F. (2021). Research topics and trends in the maritime transport: A structural topic model. Transport Policy, 102, 11–24. https://doi.org/10.1016/j.tranpol.2020.12.013

Barry, A. (2013). Material politics: Disputes along the pipeline (1st ed.). John Wiley & Sons. https://doi.org/10.1002/9781118529065

Bischof, J. M., & Airoldi, E. M. (2012). Summarizing topical content with word frequency and exclusivity. 9Th International Conference on Machine Learning, Edinburgh, Scotland, UK (pp. 201–208).

Cahaya, F. R., Porter, S., Tower, G., & Brown, A. (2017). Coercive pressures on occupational health and safety disclosures. Journal of Accounting in Emerging Economies, 7(3), 318–336. https://doi.org/10.1108/JAEE-04-2015-0032

Carvalho, F., Santos, G., & Joaquim, G. (2018). The disclosure of information on sustainable development on the corporate Website of the certified Portuguese organizations. International Journal for Quality Research, 12(1), 253–276. https://doi.org/10.18421/IJQR12.01-14

Chamorro, V. A. P. (2016). La elaboración de memorias GRI sobre responsabilidad social por entidades de gestión pública y mixta de abastecimiento y saneamiento de aguas españolas. CIRIEC-España, Revista de Economía Pública, Social y Cooperativa, 69–101.

Chan, J. L. (1979a). Corporate disclosure in occupational safety and health: Some empirical evidence. Accounting, Organizations and Society, 4(4), 273–281. https://doi.org/10.1016/0361-3682(79)90018-7

Chapman, S. A., Toretsky, C., & Phoenix, B. J. (2019). Enhancing psychiatric mental health nurse practitioner practice: Impact of state scope of practice regulations. Journal of Nursing Regulation, 10(1), 35–43. https://doi.org/10.1016/S2155-8256(19)30081-X

Chen, X., & Xie, H. (2020). A structural topic modeling-based bibliometric study of sentiment analysis literature. Cognitive Computation, 12(6), 1097–1129. https://doi.org/10.1007/s12559-020-09745-1

Curtó-Pagès, F., Ortega-Rivera, E., Castellón-Durán, M., & Jané-Llopis, E. (2021). Coming in from the cold: A longitudinal analysis of SDG reporting practices by Spanish listed companies since the approval of the 2030 agenda. Sustainability, 13(3), 1178. https://doi.org/10.3390/su13031178

Das, S., Dixon, K., Sun, X., Dutta, A., & Zupancich, M. (2017). Trends in transportation research: Exploring content analysis in topics. Transportation Research Record, 2614(1), 27–38. https://doi.org/10.3141/2614-04

David, G. C. (2005). Ergonomic methods for assessing exposure to risk factors for work-related musculoskeletal disorders. Occupational Medicine, 55(3), 190–199. https://doi.org/10.1093/occmed/kqi082

Evangelinos, K., Fotiadis, S., Skouloudis, A., Khan, N., Konstandakopoulou, F., Nikolaou, I., & Lundy, S. (2018a). Occupational health and safety disclosures in sustainability reports: An overview of trends among corporate leaders. Corporate Social Responsibility and Environmental Management, 25(5), 961–970. https://doi.org/10.1002/csr.1512

Fonseca, L., & Carvalho, F. (2019). The reporting of SDGs by quality, environmental and occupational health and safety-certified organizations. Sustainability, 11(20), 5797. https://doi.org/10.3390/su11205797

Fotiadis, S., Evangelinos, K. I., Konstantakopoulou, F., & Nikolaou, I. E. (2023a). Assessing CSR reports of top UK construction companies: The case of occupational health and safety disclosures. Sustainability, 15(8), 6952. https://doi.org/10.3390/su15086952

Fung, A., Graham, M., & Weil, D. (2007). Full disclosure: The perils and promise of transparency (1st ed.). Cambridge University Press. https://doi.org/10.1017/9780521699617

Gardiner, E. (2022). Evaluating the quality of WHS disclosures by ASX100 companies: Is mandatory WHS reporting necessary? Safety Science, 153, Article 105798. https://doi.org/10.1016/j.ssci.2022.105798

Gray, R. (2002). The social accounting project and Accounting Organizations and Society Privileging engagement, imaginings, new accountings and pragmatism over critique? Accounting, Organizations and Society, 27(7), 687–708. https://doi.org/10.1016/S0361-3682(00)00003-9

Gray, R., Kouhy, R., & Lavers, S. (1995). Corporate social and environmental reporting: A review of theliterature and a longitudinal study of UK disclosure. Accounting, Auditing and Accountability Journal, 8(2), 47–77. https://doi.org/10.1108/09513579510146996

Gunawan, J., Permatasari, P., & Fauzi, H. (2022). The evolution of sustainability reporting practices in Indonesia. Journal of Cleaner Production, 358, Article 131798. https://doi.org/10.1016/j.jclepro.2022.131798

Guo, Y., Li, A., Zhou, Y., & Di, Y. (2022). Information disclosure, practical actions and dynamics of employees' health and safety issues in Chinese family businesses-Evidence based on Chinese a-share listed companies. Frontiers in Public Health, 10, Article 952823. https://doi.org/10.3389/fpubh.2022.952823

Hadro, D., Fijałkowska, J., Daszyńska-Żygadło, K., Zumente, I., & Mjakuškina, S. (2022). What do stakeholders in the construction industry look for in non-financial disclosure and what do they get? Meditari Accountancy Research, 30(3), 762–785. https://doi.org/10.1108/MEDAR-11-2020-1093

Hahn, R., & Kühnen, M. (2013). Determinants of sustainability reporting: A review of results, trends, theory and opportunities in an expanding field of research. Journal of Cleaner Production, 59, 5–21. https://doi.org/10.1016/j.jclepro.2013.07.005

Intergovernmental Panel on Climate Change. (2007). 2007: Mitigation of climate change. Climate Change. Cambridge University Press. https://doi.org/10.1017/CBO9780511546013

Islam, M. N., & Chowdhury, M. A. F. (2016). Corporate sustainability reporting in the banking sector of Bangladesh: An appraisal of the G4 of the Global Reporting Initiative. International Journal of Green Economics, 10 (3/4), 252. https://doi.org/10.1504/IJGE.2016.081903

Kawashita, F., Taniyama, Y., Hwi, S. Y., Fujisaki, T., Kameda, T., & Mori, K. (2005). Occupational safety and health aspects of corporate social responsibility (CSR) in Japanese companies listed on the Tokyo stock exchange (TSE) first section. Journal of Occupational Health, 47(6), 533–539. https://doi.org/10.1539/joh.47.533

Koskela, M. (2014). Occupational health and safety in corporate social responsibility reports. Safety Science, 68, 294–308. https://doi.org/10.1016/j.ssci.2014.04.011

Kuhn, K. D. (2018). Using structural topic modeling to identify latent topics and trends in aviation incident reports. Transportation Research Part C, 87, 105–122. https://doi.org/10.1016/j.trc.2017.12.018

Kumar, R., Pande, N., & Afreen, S. (2018). Developing a GRI-G4-based persuasive communication framework for sustainability reporting (SR): Examining top 10 Indian banks. International Journal of Emerging Markets, 13(1), 136–161. https://doi.org/10.1108/IJoEM-01-2017-0015

Lodhia, S., Kaur, A., & Kuruppu, S. C. (2023). The disclosure of sustainable development goals (SDGs) by the top 50 Australian companies: Substantive or symbolic legitimation? Meditari Accountancy Research, 31(6), 1578–1605. https://doi.org/10.1108/MEDAR-05-2021-1297

Mäkelä, M. (2017). Trends in environmental performance reporting in the Finnish forest industry. Journal of Cleaner Production, 142, 1333–1346. https://doi.org/10.1016/j.jclepro.2016.11.177

Manes-Rossi, F., & Nicolò, G. (2022). Exploring sustainable development goals reporting practices: From symbolic to substantive approaches—Evidence from the energy sector. Corporate Social Responsibility and Environmental Management, 29(5), 1799–1815. https://doi.org/10.1002/csr.2328

Mariappanadar, S., Maurer, I., Kramar, R., & Muller-Camen, M. (2022). Is it a sententious claim? An examination of the quality of occupational health, safety and well-being disclosures in global reporting initiative reports across industries and countries. International Business Review, 31(2), Article 101922. https://doi.org/10.1016/j.ibusrev.2021.101922

Mavroulidis, M., Vouros, P., Fotiadis, S., Konstantakopoulou, F., Fountoulakis, G., Nikolaou, I., & Evangelinos, K. (2022). Occupational health and safety of multinational construction companies through evaluation of corporate social responsibility reports. Journal of Safety Research, S0022437522000056, 81, 45–54. https://doi.org/10.1016/j.jsr.2022.01.005

Mimno, D., Wallach, H., Talley, E., Leenders, M., & McCallum, A. (2011). Optimizing semantic coherence in topic models. Proceedings of the 2011 Conference on Empirical Methods in Natural Language Processing (pp. 262–272), Edinburgh, Scotland, 262–272. https://aclanthology.org/D11-1024

Monteiro, A. P., Aibar-Guzmán, B., Garrido-Ruso, M., & Aibar-Guzmán, C. (2021). Employee-related disclosure: A bibliometric review. Sustainability, 13(10), 5342. https://doi.org/10.3390/su13105342

Monteiro, A. P., Pereira, C., & Barbosa, F. M. (2023). Environmental disclosure on mandatory and voluntary reporting of Portuguese listed firms: The role of environmental certification, lucratively and corporate governance. Meditari Accountancy Research, 31(3), 524–553. https://doi.org/10.1108/MEDAR-09-2020-1001

Montero, M. J., Araque, R. A., & Rey, J. M. (2009). Occupational health and safety in the framework of corporate social responsibility. Safety Science, 47(10), 1440–1445. https://doi.org/10.1016/j.ssci.2009.03.002

Moyo, T., Crafford, G., & Emuze, F. (2022). Sustainability learning for improved safe work environments for construction semi-skilled workers in Zimbabwe. Built Environment Project and Asset Management, 12(6), 940–955. https://doi.org/10.1108/BEPAM-02-2022-0024

Nagata, T., Nakata, A., Mori, K., Maruyama, T., Kawashita, F., & Nagata, M. (2017). Occupational safety and health aspects of corporate social responsibility reporting in Japan from 2004 to 2012. BMC Public Health, 17(1), 381. https://doi.org/10.1186/s12889-017-4356-y

Nechita, E., Manea, C. L., Nichita, E.-M., Irimescu, A.-M., & Manea, D. (2020). Is financial information influencing the reporting on SDGs? Empirical evidence from Central and Eastern European chemical companies. Sustainability, 12(21), 9251. https://doi.org/10.3390/su12219251

Oakman, J., Young, S., Weale, V. P., & Pattinson, A. (2024). Occupational health and safety reporting in the top 100 Australian companies: Does organisational risk profile matter? Administrative Sciences, 14(4), 72. https://doi.org/10.3390/admsci14040072

Olanrewaju, A., Khor, J. S., & Preece, C. N. (2022). An investigation into occupational health and safety of scaffolding practices on construction sites in Malaysia. Frontiers in Engineering and Built Environment, 2(1), 1–21. https://doi.org/10.1108/FEBE-08-2021-0037

Park, S., & Kim, M.-J. (2023). Corporate characteristics and occupational injuries by industry. Safety and Health at Work, 14(3), 259–266. https://doi.org/10.1016/j.shaw.2023.08.004

Parker, S. C. (2009). The economics of entrepreneurship (1st ed.). Cambridge University Press. https://doi.org/10.1017/CBO9780511817441

Patton, G. C., Sawyer, S. M., Santelli, J. S., Ross, D. A., Afifi, R., Allen, N. B., Arora, M., Azzopardi, P., Baldwin, W., Bonell, C., Kakuma, R., Kennedy, E., Mahon, J., McGovern, T., Mokdad, A. H., Patel, V., Petroni, S., Reavley, N., Taiwo, K., . . . Viner, R. M. (2016). Our future: A Lancet commission on adolescent health and wellbeing. The Lancet, 387(10036), 2423–2478. https://doi.org/10.1016/S0140-6736(16)00579-1

Păun, A. P., Dura, C. C., Mihăilescu, S., Moraru, R. I., & Isac, C. A. (2020). OHS disclosures within non-financial reports: The Romanian case. Sustainability, 12(5), 1963. https://doi.org/10.3390/su12051963

Rahman, M. R. C. A., Abdullah, M., & Yahya, M. (2019). Information gap in corporate occupational safety and health disclosure. International Journal of Business and Management Science, 9(3), 391–406.

Rao, K. K., Burritt, R. L., & Christ, K. (2022). Quality of voluntary modern slavery disclosures: Top Australian listed companies. Pacific Accounting Review, 34(3), 451–478. https://doi.org/10.1108/PAR-07-2021-0117

Rashed, A. H., Rashdan, S. A., & Ali-Mohamed, A. Y. (2021). Towards effective environmental sustainability reporting in the large industrial sector of Bahrain. Sustainability, 14(1), 219. https://doi.org/10.3390/su14010219

Reeves, S., Lewin, S., Espin, S., & Zwarenstein, M. (2010). Interprofessional teamwork for health and social care (1st ed.). John Wiley & Sons. https://doi.org/10.1002/9781444325027

Rikhotso, O., Morodi, T. J., & Masekameni, D. M. (2022a). The extent of Occupational Health hazard impact on workers: Documentary evidence from national occupational disease statistics and selected South African companies' voluntary corporate social responsibility disclosures. Sustainability, 14(17), Article 10464. https://doi.org/10.3390/su141710464

Roberts, M. E., Stewart, B. M., & Tingley, D. (2019). stm: R package for Structural Topic Models. Journal of Statistical Software, 91(2). https://doi.org/10.18637/jss.v091.i02

Roberts, M. E., Stewart, B. M., Tingley, D., Lucas, C., Leder-Luis, J., Gadarian, S. K., Albertson, B., & Rand, D. G. (2014). Structural topic models for open-ended survey responses. American Journal of Political Science, 58(4), 1064–1082. https://doi.org/10.1111/ajps.12103

Roland, M., Ana, P., Codruta, D., Ruxandra, D., & Ana-Madalina, P. (2020a). Analysis of the drivers of occupational health and safety performance disclosures by Romanian companies. Economic Computation and Economic Cybernetics Studies and Research, 54 (3/2020), 197–214. https://doi.org/10.24818/18423264/54.3.20.12

Sari, T. K., Cahaya, F. R., & Joseph, C. (2021). Coercive pressures and anti-corruption reporting: The case of ASEAN countries. Journal of Business Ethics, 171(3), 495–511. https://doi.org/10.1007/s10551-020-04452-1

Searcy, C., Dixon, S. M., & Neumann, W. P. (2016). The use of work environment performance indicators in corporate social responsibility reporting. Journal of Cleaner Production, 112, 2907–2921. https://doi.org/10.1016/j.jclepro.2015.10.081

Shimizu, T., Nagata, T., Fujimoto, A., Inoue, S., Nagata, M., & Mori, K. (2022a). Occupational safety and health aspects of corporate social responsibility reporting in Japan: Comparison between 2012 and 2020. BMC Research Notes, 15(1), 260. https://doi.org/10.1186/s13104-022-06145-6

Tsalis, T. A., Stylianou, M. S., & Nikolaou, I. E. (2018a). Evaluating the quality of corporate social responsibility reports: The case of occupational health and safety disclosures. Safety Science, 109, 313–323. https://doi.org/10.1016/j.ssci.2018.06.015

Wang, W., Dinh, J. V., Jones, K. S., Upadhyay, S., & Yang, J. (2023). Corporate diversity statements and employees' online DEI ratings: An unsupervised machine-learning text-mining analysis. Journal of Business and Psychology, 38(1), 45–61. https://doi.org/10.1007/s10869-022-09819-x

Wang, Y., Chen, H., Long, R., Jiang, S., & Liu, B. (2022). Evaluation of occupational health and safety management of listed companies in China's energy industry based on the combined weight-cloud model: From the perspective of FPE information disclosure. International Journal of Environmental Research and Public Health, 19(14), 8313. https://doi.org/10.3390/ijerph19148313

Zhang, X., Liu, S., Mei, Q., & Zhang, J. (2023a). The influence of work safety information disclosure on performance of listed companies in high-risk industries: Evidence from Shenzhen stock exchange. Heliyon, 9(10), Article e20494. https://doi.org/10.1016/j.heliyon.2023.e20494

Cite this article: Podayan A, Balakrishnan C. A Review of Occupational Health and Safety Disclosures: Trends Identified through Structural Topic Modelling. Info Res Com. 2024;1(2):83-103.

Appendix 1: Most contributed scholarly journals in OHS disclosure.

Journal name	Number of articles	Scopus coverage years	Publisher:	Cite Score 2023
Journal of Cleaner Production	23	from 1993 to the Present	Elsevier	20.4
Safety Science	19	from 1991 to Present	Elsevier	13.0
Sustainability (Switzerland)	19	from 2009 to Present	Multidisciplinary Digital Publishing Institute (MDPI)	6.8
Journal of Business Ethics	11	from 1982 to Present	Springer Nature	12.8
International Journal of Environmental Research and Public Health	10	from 2004 to 2023	Multidisciplinary Digital Publishing Institute (MDPI)	7.3
Corporate Social Responsibility and Environmental Management	5	from 2003 to Present	Wiley-Blackwell	17.2
Meditari Accountancy Research	5	from 2012 to Present	Emerald Publishing	7.8
Society of Petroleum Engineers-9th International Conference on Health, Safety and Environment in Oil and Gas Exploration and Production 2008-"In Search of Sustainable Excellence"	5	from 2006 to 2023	Society of Petroleum Engineers	7.8
Work	5	from 1990 to 2023	IOS Press	4
Accounting, Auditing and Accountability Journal	4	from 1988 to Present	Emerald Publishing	9.5
Accounting, Organisations and Society	4	from 1976 to Present	Elsevier	7.8
American Journal of Industrial Medicine	4	from 1980 to Present	Wiley-Blackwell	5.9
CSR, Sustainability, Ethics and Governance	4	from 2013 to 2023	Springer Nature	0.6
Frontiers in Psychology	4	from 2010 to 2023	Frontiers Media SA	5.3
Industrial Health	4	from 1963 to 2024	National Institute of Industrial Health	3.4
Journal of Occupational Medicine	4	1959, 1963, from 1965 to 1967, 1970, 1980, 1988, from 1990 to 1991, from 1995	Wolters Kluwer Health	Na
New Solutions	4	from 1996 to Present	SAGE	3.5
Sustainable Production and Consumption	4	from 2015 to Present	Elsevier	17.5
American Journal of Public Health	3	from 1949 to 1963, from 1971 to Present	American Public Health Association Inc.	9.5
Australian Accounting Review	3	from 1991 to 2024	Wiley-Blackwell	6.3

Appendix 2: **Most cited article.**

Sl. No.	Article	Total citation
1	"Corporate social and environmental reporting: A review of the literature and a longitudinal study of UK Disclosure" (Gray *et al*., 1995).	1796
2	"Our future: a Lancet commission on adolescent health and well-being" (Patton *et al*., 2016).	1472
3	"The economics of entrepreneurship" (Parker, 2009).	811
4	"Determinants of sustainability reporting: A review of results, trends, theory and opportunities in an expanding field of research" (Hahn and Kühnen, 2013).	660
5	"Full disclosure: The perils and promise of transparency"(Fung *et al*., 2007).	632
6	"The Social Accounting Project and Accounting Organizations and Society. Privileging engagement, imaginings, new accountings and pragmatism over critique?"(Gray, 2002).	559
7	"Ergonomic methods for assessing exposure to risk factors for work-related musculoskeletal disorders"(David, 2005).	506
8	"Interprofessional Teamwork for Health and Social Care"(Reeves *et al*., 2010).	479
9	"Material Politics: Disputes Along the Pipeline"(Barry, 2013).	393
10	"Climate change 2007 mitigation of climate change"(Intergovernmental Panel On Climate Change, 2007).	376

Appendix 3: **Table of sample out of find thoughts () function.**

Papers	
1	"Quality of voluntary modern slavery disclosures: top Australian listed companies"(Rao *et al*., 2022).
2	"Enhancing Psychiatric Mental Health Nurse Practitioner Practice: Impact of State Scope of Practice Regulations"(Chapman *et al*., 2019).
3	"Coming in from the cold: A longitudinal analysis of SDG reporting practices by Spanish listed companies since the approval of the 2030 agenda"(Curtó-Pagès *et al*., 2021).
4	"What do stakeholders in the construction industry look for in non-financial disclosure and what do they get?"(Hadro *et al*., 2022).
5	"Coercive Pressures and Anti-corruption Reporting: The Case of ASEAN Countries"(Sari *et al*., 2021).
6	"The development of Social Responsibility GRI reports by Spanish public and mixed water supply and sanitation entities"(Chamorro, 2016).
7	"Occupational health and safety: Quality and determinants of its disclosure in sustainability reporting" (Alves and Ramos, 2022b).
8	"Occupational safety and health aspects of corporate social responsibility reporting in Japan: comparison between 2012 and 2020"(Shimizu *et al*., 2022a).
9	"Trends in environmental performance reporting in the Finnish forest industry"(Mäkelä, 2017).
10	"The disclosure of Sustainable Development Goals (SDGs) by the top 50 Australian companies: substantive or symbolic legitimation?"(Lodhia *et al*., 2023).
11	"Corporate sustainability reporting in the banking sector of Bangladesh: An appraisal of the G4 of the Global Reporting Initiative"(Islam and Chowdhury, 2016).
12	"Benchmarking the sustainability reporting of High-Speed Railways (HSRs): Towards a state-of-the-art benchmarking and reporting framework for HSRs" (Azzouz and Jack, 2020).
13	"Exploring sustainable development goals reporting practices: From symbolic to substantive approachesâ€"Evidence from the energy sector"(Manes-Rossi and Nicolo', 2022).
14	"Is financial information influencing the reporting on SDGs? Empirical evidence from central and eastern european chemical companies" (Nechita *et al*., 2020).
15	"Coercive pressures on occupational health and safety disclosures"(Cahaya *et al*., 2017).
16	"The disclosure of information on sustainable development on the corporate website of the certified portuguese organisations" (Carvalho *et al*., 2018).

Papers	
17	"Environmental disclosure on mandatory and voluntary reporting of Portuguese listed firms: the role of environmental certification, lucratively and corporate governance" (Monteiro *et al*., 2023).
18	"Towards effective environmental sustainability reporting in the large industrial sector of Bahrain" (Rashed *et al*., 2021).
19	"Analysis of the drivers of occupational health and safety performance disclosures by romanian companies" (Roland *et al*., 2020a).
20	"The evolution of sustainability reporting practices in Indonesia" (Gunawan *et al*., 2022).