

SAFETY CULTURE AMONG YOUTH: A BIBLIOMETRIC ANALYSIS

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ABSTRACT

Safety culture has gained growing attention across multiple disciplines, particularly concerning youth populations. This study presents a bibliometric analysis of global scientific publications on safety culture among youth, based on a dataset of 1410 documents retrieved from the Scopus and Web of Science (WoS) databases from 1990 to 2024. ScientoPy was employed to extract descriptive trends, author productivity, country contributions, and thematic keyword evolution. The findings reveal a significant upward trajectory in research output beginning in 2010, with a marked acceleration post-2018, reflecting increased global concern for youth safety in educational, behavioural, and public health contexts. The most frequently occurring themes include youth, injury prevention, safety education, and safety behaviour, with notable emergent topics such as food safety and epidemiology gaining prominence in the last two years. The United States leads in publication volume, followed by Australia, the United Kingdom, and China. The subject area analysis indicates that research centres mainly focus on public health, psychology, and education. Key institutional contributors include the University of Iowa and the University of Michigan, with Accident Analysis and Prevention, Journal of Safety Research, and BMC Public Health, among the most prolific journals. This study highlights the consolidation of knowledge and the emergence of interdisciplinary trends related to safety culture among youth. It also identifies underrepresented regions and themes, particularly digital safety education and culturally contextualised approaches, offering future directions for researchers, practitioners, and policy-makers aiming to foster safer environments for young people worldwide.

Keywords: Safety culture; youth development; public health and youth

1. INTRODUCTION

The emergence of safety culture as a critical research construct has its origins in high-reliability sectors such as nuclear energy (Orikpete et al., 2024), aviation (Pratama & Caponecchia, 2025), and healthcare (Arzahan et al., 2022), where the cost of safety failures can be devastating. Over time, however, the concept has matured and diversified beyond organisational compliance to encompass values, attitudes, perceptions, and shared practices that collectively shape behaviour towards risk and safety (Bisbey et al., 2021). Recently, a significant shift has been observed in how safety culture is conceptualised not merely as a function of organisational protocols (Amirah et al., 2024). Yet, it is also a broader socio-cultural orientation encompassing vulnerable groups, particularly youth (Grigorieva & Chernyak, 2024). This development warrants closer examination as young people increasingly navigate complex physical, emotional, and digital landscapes with varying risk exposure and preparedness (Eriksson, 2024).

Safety culture among youth is acknowledged as a critical area of study. This is because youth profoundly impact individual and societal well-being (Cahill & Gowing, 2024). Safety culture broadly encompasses shared attitudes, beliefs, perceptions, and values that determine individual and collective commitment to safety practices within a community or organisation (Tappura et al., 2022). In the context of youth, promoting a robust safety culture not only addresses immediate safety risks but also instils lifelong attitudes and behaviours conducive to personal and community resilience

(Baumann et al., 2021; Duell & Steinberg, 2021). Despite its importance, significant gaps remain in theoretical frameworks and empirical evidence specifically targeting youth populations. The understanding of safety culture among youth remains fragmented, often relying on general injury prevention frameworks rooted in adult-oriented theories (Amicone, 2020), thereby overlooking the unique psychological, social, and developmental characteristics central to youth development (Lerner et al., 2021). This gap in literature underscores the urgency for a focused exploration into how youth perceive, engage with, and integrate safety practices into their daily lives.

Youth are in a critical stage of cognitive, social, and emotional development (Jagers et al., 2021), which makes them particularly vulnerable to accidents (Popa et al., 2023), injuries (Nguyen & Caine, 2025), and engagement in risky behaviours (Daniels et al., 2024). Adolescents and young adults frequently underestimate risk (Graupensperger et al., 2021), partly due to their neurological propensity for sensation-seeking and limited impulse control (Meeus et al., 2021), significantly impacting their capacity to engage in safe behaviours consistently (Icenogle & Cauffman, 2021). Moreover, socio-cultural environments significantly influence safety culture among youth, where peer pressure, media exposure, familial guidance, and educational interventions shape youths' perceptions and responses to safety risks (Purnama & Asdlori, 2023; Wright & Silberman, 2018). Thus, a multidimensional approach incorporating psychological development, socio-environmental factors, and educational strategies is crucial in understanding and fostering safety culture among youth.

Educational institutions have increasingly become central to the discourse on safety culture among youth. Schools and universities are primary environments for implementing structured safety education programmes (Savolainen, 2023). These initiatives often emphasise cognitive-behavioural components, including knowledge dissemination, attitude formation, and behavioural training, which are crucial for fostering lasting safety-oriented behaviours among youth (Yang et al., 2024). However, research indicates that many current educational interventions fail to achieve sustainable behavioural change (Osman et al., 2020). A likely reason is that they fail to account for the complex interplay between knowledge acquisition and attitudinal development among youth (Cherukunnath & Singh, 2022). Hence, to enhance the effectiveness of such programmes, it is essential to incorporate interactive and participatory components that are developmentally appropriate and resonate with the lived experiences of young people.

Family and community environments add further complexity to developing a safety culture among youth. Families play a pivotal role in shaping early safety perceptions and behaviours through direct instruction, behavioural modelling, and reinforcement of safety norms (Morrongiello, 2018). However, research reveals substantial variation in safety-related practices across households, often influenced by factors such as socioeconomic status, parental education, and cultural background (Henry et al., 2019). Beyond the family unit, community norms and structures also influence youth safety behaviours considerably. This suggests that community-wide initiatives, particularly those involving multi-stakeholder collaboration, may be more effective in fostering a sustainable safety culture than isolated or individual-level interventions (Tong et al., 2023).

Despite the clear evidence emphasising the importance of comprehensive safety culture initiatives, a significant disconnect remains between knowledge dissemination and practical implementation among youth populations. Bisbey et al. (2021) emphasise that many safety culture models inadequately address the behavioural dimension, particularly in youth contexts, where knowledge

alone does not guarantee safe practices. This gap is further complicated by institutional inconsistencies, particularly in school and community settings, where enforcement of safety norms is irregular or influenced by social dynamics (Espelage et al., 2022). As a result, youth may internalise the notion that safety practices are conditional rather than universally applicable, reinforcing a context-dependent interpretation of risk (Gibson et al., 2023). This synthesis underscores the urgent need for interventions that deliver knowledge and cultivate a consistent culture of enforcement and accountability across all youth-centred environments.

Technological advancements and the widespread use of digital media have significantly shaped contemporary safety culture among youth, presenting opportunities and risks. Digital platforms have transformed traditional safety education by enabling more interactive and accessible learning experiences (Vukićević et al., 2021). These platforms offer scalable and engaging educational content that resonates with digitally literate youth populations (Murniarti et al., 2023). However, the proliferation of digital media also exposes young people to misinformation and potentially hazardous behaviours (Purba et al., 2023; Santiago et al., 2019), which can undermine the impact of structured safety education initiatives. Addressing this dual influence requires implementing nuanced digital literacy programmes that equip youth with the critical thinking skills to evaluate online content and make informed, safety-conscious decisions.

Given these complexities, there is a clear need for a robust theoretical and practical understanding of safety culture that is explicitly tailored to youth populations. Youth-oriented safety interventions require a holistic framework that integrates cognitive-behavioural theories (McPherson et al., 2024), socio-cultural influences (Munea et al., 2022), and insights from developmental psychopathology (Grasser & Jovanovic, 2021). Such an integrated approach recognises the interplay between individual cognition, social context, and psychological development in shaping youth safety behaviours. Furthermore, future research should prioritise longitudinal designs to assess the sustainability of safety culture interventions and their long-term impacts on young people's behaviours, attitudes, and risk perceptions.

Despite the growing body of literature on safety culture among youth, research in this area remains fragmented across disciplines and theoretical perspectives. In order to address this gap, the present study conducts a bibliometric analysis of existing scholarly works on safety culture among youth to systematically identify research trends, influential contributors, and dominant thematic areas. As a robust methodological tool, bibliometric analysis is essential for identifying research gaps, tracing scholarly trends, and guiding future investigations within a given field (Abdullah et al., 2023). Thus, by analysing recent publications, this study seeks to synthesise current knowledge and propose evidence-based directions for future research and practical interventions. Ultimately, this study aims to contribute meaningfully to advancing safety culture among youth and its broader implications for individual and community well-being. The following research questions guide the current study:

1. What are the publication trends on safety culture among youth?
2. Which institutions and countries concentrated most on safety culture among youth?
3. What are frequently used keywords in the literature on safety culture among youth?
4. Which source titles and subject areas are the most published on safety culture among youth?

2. METHODOLOGY

This study utilised a bibliometric approach to assess research output on safety culture among youth. The technique comprises three primary stages: data collection, delineating scope and limitations, bibliometric tool and analysis, and data cleaning and preprocessing.

2.1 Data Collection

The datasets utilised in this study were retrieved in April 2025 from two prominent databases, Scopus and Web of Science (WoS). This technique promises thorough and finer coverage of academic literature. These databases were chosen for their comprehensive indexing of peer-reviewed journals, strong citation tracking features, and wide-ranging discipline coverage (Abdullah & Sofyan, 2023). Scopus, overseen by Elsevier, is acknowledged for its extensive coverage in social sciences, engineering, and health domains (Sofyan & Abdullah, 2022). In contrast, WoS, maintained by Clarivate Analytics, is valued for its rigorous selectivity and depth, especially in prominent and high-impact journals (Verma & Sharma, 2024). Both databases enable data source cross-validation, reducing publication bias and improving bibliometric analysis.

A structured search strategy was employed using Title, Abstract, and Keywords fields to broadly retrieve relevant literature on safety culture among youth. This approach increases the likelihood of capturing studies where the central themes are explicitly addressed, even if they are not the primary focus of the paper title alone. Pottier et al. (2024) mentioned that the Title, Abstract, and Keywords balanced specificity and comprehensiveness, as these sections indicated a publication's core content.

The Boolean search string applied was: ("safety culture" OR "safety awareness" OR "safety education" OR "safety behaviour" OR "safety training") AND ("youth" OR "young people" OR "adolescen*" OR "teenager*"). This combination was designed to capture a broad spectrum of studies addressing various dimensions of safety practices and perceptions among youth. The first cluster of terms focuses on safety-related constructs, from culture and awareness to behaviour and education, while the second cluster targets population-specific descriptors encompassing general and age-specific terms (youth, adolescents, and teenagers). The use of truncation symbols (adolescen* and teenager*) allowed for the inclusion of multiple word variants, thereby enhancing the sensitivity of the search and capturing plural, singular, and derivative forms.

2.2 Delineating Scope and Limitations

While Scopus and WoS provide broad access to peer-reviewed literature, these databases may not encompass grey literature, preprints, or regionally indexed sources beyond their coverage. As such, some context-specific or recently emerging studies may be unconsciously excluded. Despite this, the combined use of both databases, supported by established bibliometric software, strengthens the findings' credibility, transparency, and reproducibility (Abdullah et al., 2023). Initially, no restrictions were applied to publication years, allowing for an inclusive retrieval of relevant documents. However, to ensure analytical clarity and reflect the developmental trajectory of the field, the analysis was ultimately limited to works published between 1990 and 2024, aligning with the historical foundations and current developments in safety culture among youth scholarship.

2.3 Bibliometric Tool and Analysis

In order to analyse the retrieved dataset systematically and visualise the intellectual structure of the research landscape, this study employed ScientoPy. The alignment with the current research objective and the nature of the research questions guided the selection of ScientoPy in this study. ScientoPy was utilised for performance analysis, providing descriptive statistics on the evolution of scientific output over time (Sofyan et al., 2022). This included identifying annual publication trends, leading source titles, active countries and institutions, and high-frequency keywords. In addition, ScientoPy

was selected for its ease of use, Python-based tool design, and ability to generate automated trend graphs and productivity metrics (Ruiz-Rosero et al., 2019). ScientoPy can illustrate publication trends, such as increases or decreases in research output. Beyond this, it also enables researchers to derive meaningful qualitative insights from the data. For instance, the software allows scholars to interpret underlying research dynamics, thematic shifts, and collaborative patterns by tracking the evolution of author productivity, institutional contributions, and emerging keywords (Abdullah, 2023b). This dual capacity for numerical representation and contextual understanding makes ScientoPy a valuable tool for conducting comprehensive bibliometric analyses.

2.4 Data Cleaning and Preprocessing

Before addressing the research questions, a data preprocessing phase is required to ensure the accuracy and coherence of the dataset. This step begins with consolidating all retrieved records into a comprehensive file and then removing duplicate entries. Data cleaning also involves standardising textual elements such as replacing commas in author names with semicolons, eliminating punctuation (e.g., periods and commas), and correcting special characters or diacritical marks. Additionally, entries with identical titles and author names are systematically excluded to avoid redundancy. These procedures enhance the dataset's integrity and analytical reliability (Ruiz-Rosero et al., 2019).

Table 1: The Summary of Data Preprocessing

Information	Number	Percentage
Loaded papers from Scopus and WoS	1806	
Omitted papers by document type (only included article, conference paper, proceeding paper, and review paper)	44	2.40%
Total papers after omitted papers removed	1762	
Loaded papers from WoS	436	24.70%
Loaded papers from Scopus	1326	75.30%
Duplicated papers found	352	20.00%
Removed duplicated papers from WoS	3	0.70%
Removed duplicated papers from Scopus	349	26.30%
Duplicated documents with different cites by	232	65.90%
Total papers after removing duplicates	1410	
Total papers after removing duplicates from WoS	433	30.70%
Total papers after removing duplicates from Scopus	977	69.30%

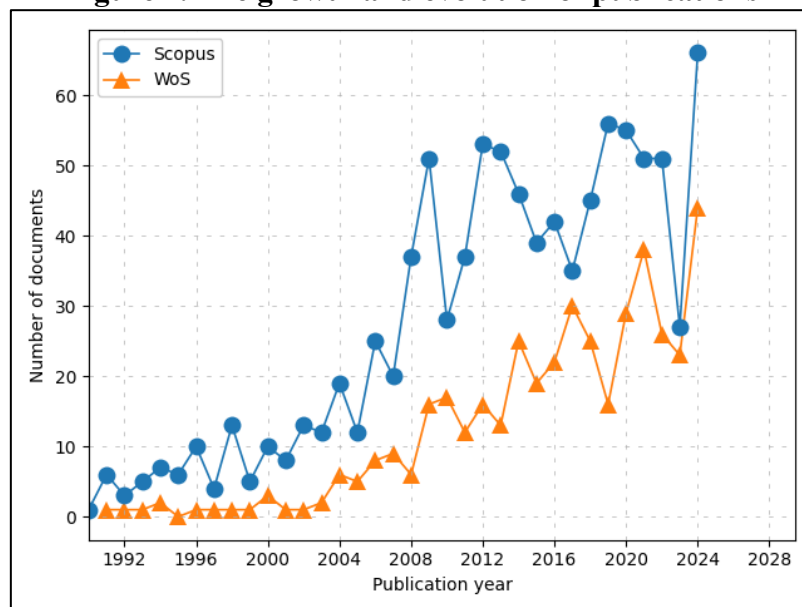
As detailed in Table 1, datasets were screened based on type, retaining only peer-reviewed articles, conference papers, proceeding papers, and review articles. This resulted in the omission of 44 documents (2.40%), leaving 1762 eligible records for further processing. In order to identify duplicates, records from both databases were merged. A total of 352 duplicated entries (20.00%) were detected, 349 from Scopus (26.30%) and 3 from WoS (0.70%). Among these, 232 records (65.90%) were recognised as duplicated entries with differing citation data. After removing all duplicate entries, the final dataset comprised 1410 documents, with 433 sourced from WoS (30.70%) and 977 from Scopus (69.30%). The final dataset comprising 1410 publications is considered sufficient for conducting a robust bibliometric analysis, as bibliometric methods typically require larger datasets to reveal meaningful patterns and trends; by contrast, when fewer than 100 records are available, alternative methods such as scoping or systematic reviews are more appropriate (Abdullah, 2023a).

3. RESULTS AND DISCUSSION

3.1 The Growth and Evolution of Publications on Safety Culture among Youth

The longitudinal analysis of publication trends reveals a marked evolution in scholarly interest on safety culture among youth from 1990 to 2024. As illustrated in Figure 1, Scopus and WoS databases show gradual growth in the early 1990s, with a more pronounced upward trend beginning in the early 2000s. In the initial phase (1990 to 1999), publication activity was relatively low, with Scopus indexing an average of 6 papers per year and WoS fewer than 2. This suggests that the concept of safety culture among youth had not yet emerged as a distinct research focus. The early 2000s marked the beginning of steady growth, likely influenced by increased global emphasis on youth development (Dimitrova & Wiium, 2021), educational safety reforms (Bastian et al., 2022), and adolescent risk behaviours (Ball et al., 2023).

Figure 1. The growth and evolution of publications



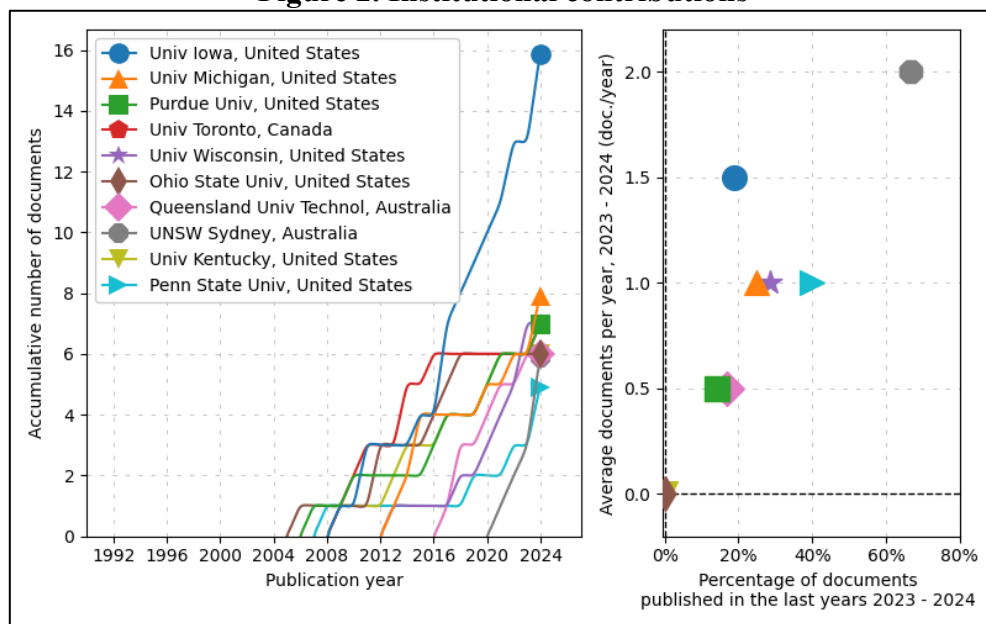
A significant surge is evident between 2010 and 2024, with Scopus publications peaking at 66 papers in 2024. WoS shows a similar upward trend, reaching its highest count at 44 publications in the same year. The period from 2015 to 2024 represents the most prolific decade, with sustained outputs across both databases, indicating the field's maturation and growing academic legitimacy. Factors contributing to this growth likely include integrating digital safety issues (Freed et al., 2023), mental health (Hards et al., 2022), school-based interventions (Jacob et al., 2021), and policy-driven frameworks targeting youth wellbeing (Powell & Graham, 2017).

While Scopus consistently yields a higher volume of indexed documents than WoS, the parallel trendlines across both platforms reinforce the robustness of the observed growth pattern. This divergence in volume may be attributed to Scopus's broader indexing criteria and inclusion of conference proceedings, especially in education and behavioural sciences. These findings affirm that bibliometric analysis is well-suited to capturing the field's developmental trajectory (Abdullah et al., 2023). The noticeable increase in publication volume over the last decade signals a paradigm shift from a peripheral concern to a core research theme, aligning with broader international agendas, as experiences of globalisation call for rethinking global justice through the concept of empowered inclusion (Josefsson & Wall, 2020).

3.2 Institutional and Geographical Contributions to Safety Culture among Youth Research

Figure 2 illustrates the evolution of publication activity by the top contributing institutions on safety culture among youth. The University of Iowa (United States) leads in cumulative publication output, showing a steep rise from 2017 onwards and reaching the highest total of 16 documents by 2024. This sharp growth trajectory indicates the institution's growing centrality in this field, particularly in recent years. Other notable contributors include the University of Michigan (United States), Purdue University (United States), and Ohio State University (United States), each with consistent publication patterns since the mid-2010s.

Figure 2. Institutional contributions



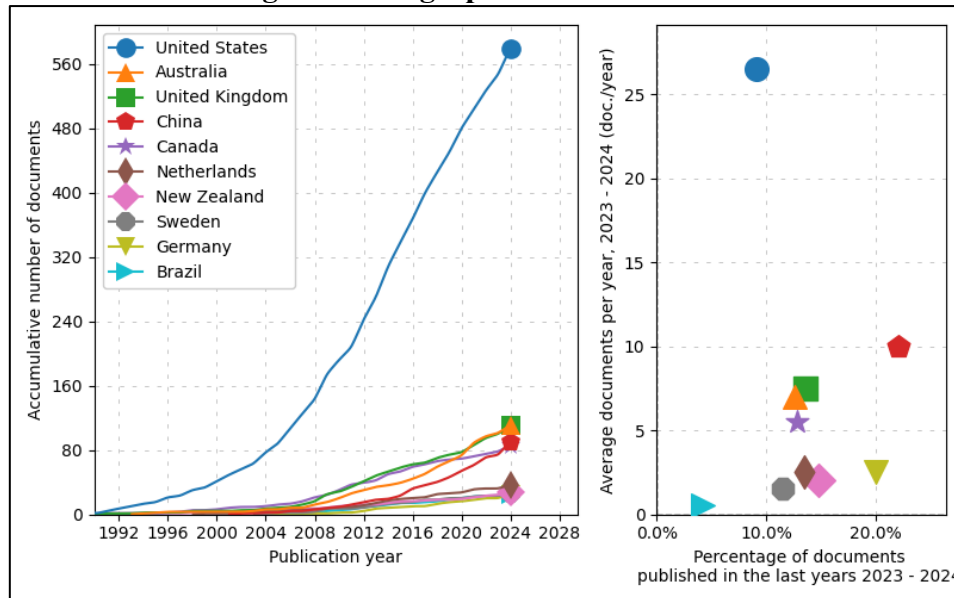
The right-hand panel of Figure 2 provides insight into recent productivity trends (2023-2024). Despite a modest cumulative output, The University of New South Wales (UNSW) in Sydney (Australia) demonstrates the highest average number of publications per year during this period and the highest percentage of recent publications, indicating its emerging prominence in the field. This highlights the importance of assessing historical and recent activity to capture evolving institutional leadership. Universities in the United States dominate the landscape, suggesting that North American academic environments continue to serve as key hubs for safety culture research targeting youth populations.

As shown in Figure 3, the United States is the most prolific country in safety culture among youth research, with steep and sustained growth in cumulative publications, exceeding 560 documents by 2024. The publication curve shows steady output since the early 2000s, with notable acceleration over the last decade. In contrast, countries such as Australia, the United Kingdom, China, and Canada demonstrate moderate but consistent contributions.

The right panel of Figure 3 highlights more nuanced insights into recent performance. While the United States maintains the highest average number of publications per year from 2023 to 2024 (over 25 documents/year), countries like the Netherlands and the United Kingdom show a notable proportion of their output published in just the last two years, suggesting increased research momentum in those regions. The data indicate a concentration of research activity in high-income countries, with limited contributions from the Global South. This trend underscores the need for more

geographically inclusive research agendas, particularly to address safety culture among youth within diverse socio-cultural and infrastructural contexts.

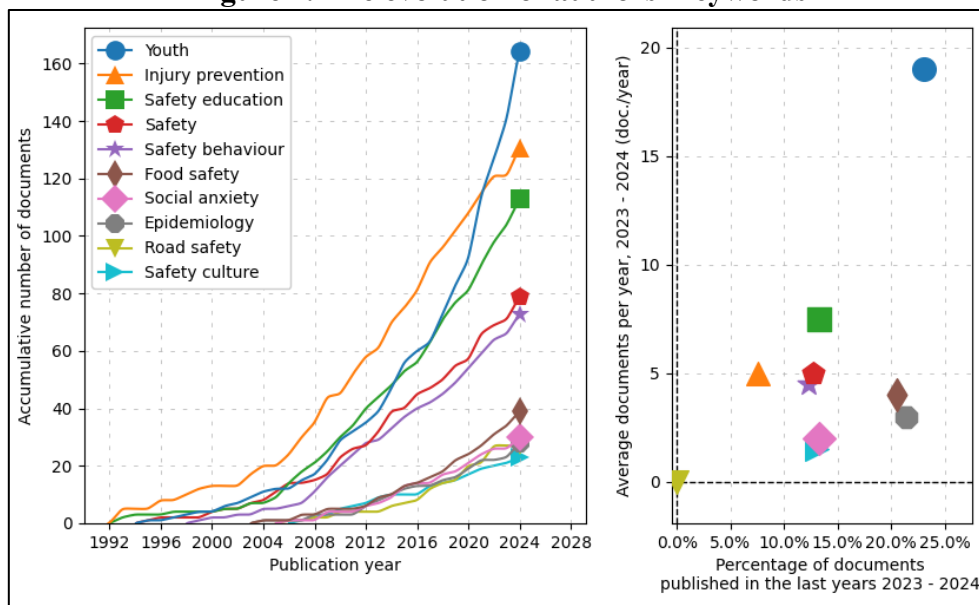
Figure 3. Geographical contributions



3.3 The Dominant Topics and Research Priorities Over Time

As visualised in Figure 4, the analysis of author keywords provides valuable insights into the thematic development of research on safety culture among youth from 1990 to 2024. The cumulative trends on the left panel and the recent productivity metrics on the right panel reveal long-standing focus areas and newly emerging interests in the field.

Figure 4. The evolution of authors' keywords



The term “Youth” is the most frequently occurring and fastest-growing keyword, with a steep upward trajectory after 2015, peaking between 2023 and 2024. This reinforces the study’s core premise that youth have increasingly become a focal population in safety-related discourse (Issahaku & Adam, 2024). Similarly, “Injury Prevention” and “Safety Education” have shown consistent and substantial

growth, indicating that scholarly attention has steadily expanded from occupational and environmental safety toward educational and developmental contexts targeting younger populations (Slaatto et al., 2022).

Thematic areas such as “Safety Behaviour” and “Safety Culture” demonstrate moderate yet steady growth. These keywords reflect a shift from incident-based approaches to more proactive, culture- and behaviour-oriented models that emphasise prevention, values, and long-term attitude formation (Cui et al., 2025). This is particularly significant in youth studies, where behavioural change and cultural adaptation are central to developmental outcomes (Arora et al., 2021).

Notably, keywords such as “Food Safety,” “Social Anxiety,” “Epidemiology,” and “Road Safety” have emerged as niche but growing topics. Their inclusion suggests broadening the field to incorporate diverse risk environments and psychological dimensions affecting youth safety. The presence of “Social Anxiety,” for instance, may reflect increasing interest in the mental and emotional contexts that influence risk-taking behaviour and safety perception among adolescents (Ajisuksmo, 2021).

The right panel of Figure 4 offers further insight by mapping the average number of documents per year (2023–2024) against the percentage of total documents published in this period. Keywords such as “Youth” and “Injury Prevention” dominate both metrics, signalling historical importance and current momentum. Meanwhile, “Safety Education” and “Food Safety” appear to be gaining relevance in recent years, suggesting they are emerging priorities in the literature.

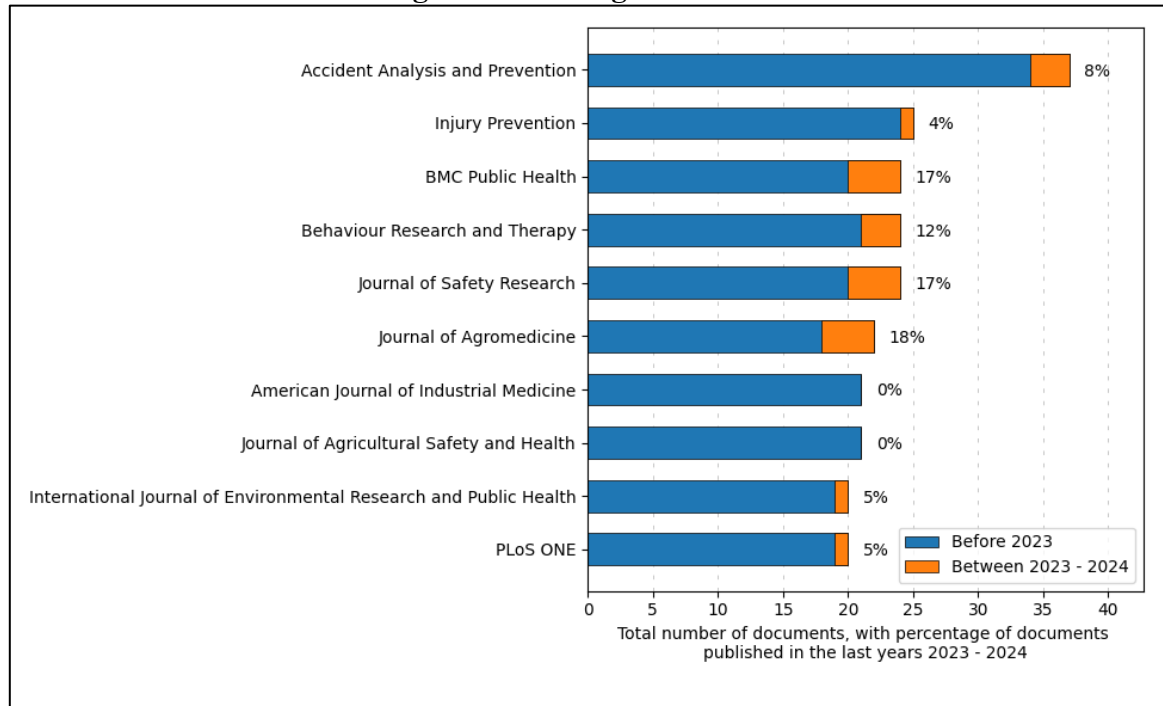
These findings point to a maturing and diversifying field. While foundational themes such as injury prevention and general safety remain central, there is a discernible move toward interdisciplinary approaches encompassing education, public health, psychology, and community-based perspectives. The increasing visibility of terms like “Social Anxiety” and “Epidemiology” also suggests a stronger emphasis on understanding the broader social determinants of safety among youth. Future research could benefit from further exploring underrepresented themes, particularly those related to emotional and digital safety, which may not yet be reflected prominently in the current keyword trends. Moreover, studies conducted in non-Western and low-to-middle-income contexts remain limited, signalling the need for more globally inclusive scholarship.

3.4 Top Source Titles and Subject Areas Publishing Research on Safety Culture among Youth

Figure 5 presents the most productive journals on safety culture among youth research, revealing key platforms where related studies are most frequently disseminated. Accident Analysis and Prevention stands out as the dominant source, with nearly 40 publications, solidifying its role as a core outlet for safety-related empirical research. Although only 8% of its publications occurred in the 2023 to 2024 period, its historical contribution positions it as an established authority in injury prevention and behavioural safety studies.

Other prominent journals include Injury Prevention, BMC Public Health, Behaviour Research and Therapy and the Journal of Safety Research, each contributing more than 20 documents. Notably, BMC Public Health and the Journal of Safety Research demonstrate a relatively higher recent activity, with 17% of their contributions published in the last two years (2023 and 2024). This suggests these journals are increasingly receptive to emerging work in youth-centred safety culture.

Figure 5. Leading source titles



Journals such as Behaviour Research and Therapy, Journal of Agromedicine, and PLoS ONE also contribute significantly, reflecting the field's interdisciplinary nature. For example, the inclusion of PLoS ONE and the International Journal of Environmental Research and Public Health indicates a growing interest in open-access, interdisciplinary dissemination channels, which expand accessibility to safety research across academic and practitioner audiences. Interestingly, two journals, the American Journal of Industrial Medicine and the Journal of Agricultural Safety and Health, exhibit no publications during the 2023 to 2024 period, highlighting either a shift in journal scope or a potential stagnation in research output related to youth safety in these domains.

Figure 6 complements this analysis by displaying the distribution of safety culture among youth publications across subject areas. As expected, Public, Environmental, and Occupational Health emerges as the leading field, with over 150 publications. This aligns with the traditional framing of safety as a public health issue and highlights the enduring focus on injury prevention, health promotion, and environmental risk mitigation. Following closely are Psychology and Education & Educational Research, reflecting the field's increasing engagement with cognitive, behavioural, and pedagogical dimensions of safety among youth. This underscores a growing recognition that cultivating a safety culture is not merely a structural or policy concern but also an educational and psychological one.

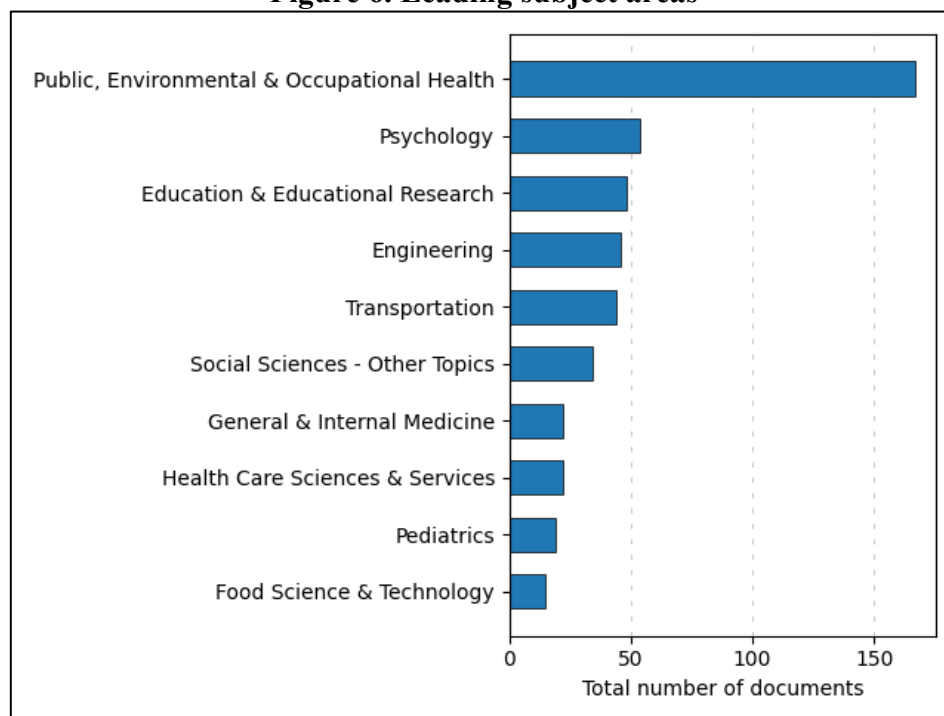
Other notable fields include Engineering, Transportation, and Social Sciences, which collectively reflect the multidisciplinary nature of safety culture among youth research. The inclusion of Pediatrics, General & Internal Medicine, and Food Science & Technology, though less represented in the volume, suggests an expansion into niche areas, particularly regarding developmental health and nutrition-related safety concerns.

The diverse range of journals and subject areas reinforces that safety culture among youth is a multidimensional and cross-sectoral research domain. While public health remains the central disciplinary anchor, increasing contributions from psychology, education, and social sciences

indicate a paradigm shift toward more holistic and preventive approaches. Moreover, recent contributions in open-access and interdisciplinary journals signal a move toward broader visibility and accessibility of research findings.

Future research may benefit from exploring underrepresented outlets and disciplines, particularly in urban planning, digital safety, and cross-cultural studies to capture evolving risks in technologically mediated and globally diverse youth contexts. Additionally, the modest recent activity in some long-standing journals suggests a potential need for the field to re-engage with sectors like agricultural safety and occupational health in rural or informal settings where youth involvement remains significant.

Figure 6. Leading subject areas



4. CONCLUSION

This bibliometric analysis provides a comprehensive overview of the evolution, key contributors, and thematic directions in research on safety culture among youth from 1990 to 2024. The findings demonstrate a significant surge in scholarly output over the last decade, reflecting a shift from peripheral academic concern to a recognised and rapidly expanding field of inquiry. The United States dominates institutional and national contributions, with universities such as the University of Iowa and UNSW Sydney emerging as leading contributors in recent years. Thematic analysis reveals a transition from traditional safety concerns toward a more nuanced understanding that integrates injury prevention, safety education, behavioural change, and broader public health paradigms. Journals like *Accident Analysis and Prevention*, *BMC Public Health*, and *Journal of Safety Research* serve as core dissemination platforms. At the same time, public health, psychology, and education emerge as dominant subject areas, underscoring the interdisciplinary nature of this field.

Despite these advances, the field presents several opportunities for further exploration. Research remains concentrated mainly in high-income countries, highlighting the need for more geographically

inclusive studies considering culturally and economically diverse youth populations. Additionally, emerging themes such as food safety, epidemiology, and social anxiety suggest that future research should increasingly focus on the psychosocial and technological environments where youth operate, as these domains reflect the evolving nature of risks and protective factors influencing youth safety. These themes highlight the importance of understanding external hazards and internal and systemic factors such as mental health, public health surveillance, and food-related risks that shape youth perceptions, behaviours, and responses to safety issues in contemporary contexts. Future research could also explore integrating digital safety education with culturally contextualised approaches to enhance relevance and effectiveness across diverse populations. This study contributes to a deeper understanding of safety culture among youth as a maturing and multidimensional research domain. It offers a clear foundation for scholars and practitioners to shape future agendas and interventions.

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