

Bibliometric Analysis of Research Trends on Cigarette Smoke Exposure and Childhood Asthma

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Article Info	Abstract
Article History Received: 2026-04-29 Revised: 2026-09-02 Published: 2026-09-28 Keywords: child; parental smoking; pregnancy	<i>Parental cigarette smoke exposure is an environmental risk factor that may negatively affect children's respiratory and overall health. Exposure during pregnancy and after birth may increase the risk of respiratory disorders, particularly asthma, and affect lung function development. This study aimed to analyze publication trends, citation patterns, country distribution, and research themes related to parental cigarette smoke exposure and childhood asthma. A bibliometric analysis was conducted using Scopus data covering publications from 2015 to 2025. A total of 484 articles meeting the inclusion criteria were analyzed using VOSviewer to map publication trends, country contributions, keyword relationships, and thematic developments. The results showed continued research development, with the highest number of publications recorded in 2022, totaling 61 articles. The United States was the leading contributor with 119 publications, followed by the United Kingdom with 70 publications. The article by Castro-Rodriguez et al. (2016), entitled Risk and Protective Factors for Childhood Asthma: What Is the Evidence?, received the highest number of citations, with 233 citations. Keyword analysis identified children, maternal smoking, pregnancy, asthma, and risk factors as dominant themes. Thematic evolution indicated increasing attention to prenatal and postnatal cigarette smoke exposure and its association with childhood asthma and respiratory health. Overall, research on parental cigarette smoke exposure and childhood asthma developed substantially during 2015–2025. The bibliometric mapping provides insights into publication trends, leading countries, influential articles, and dominant themes, supporting future research and family-based strategies to prevent children's exposure to cigarette smoke.</i>
Artikel Info	Abstrak
Sejarah Artikel Diterima: 2026-04-29 Direvisi: 2026-09-02 Dipublikasi: 2026-09-28 Kata kunci: anak; kebiasaan merokok orang tua; kehamilan	Paparan asap rokok orang tua merupakan faktor risiko lingkungan yang dapat berdampak negatif terhadap kesehatan pernapasan anak. Paparan selama kehamilan dan setelah kelahiran dapat meningkatkan risiko gangguan pernapasan, khususnya asma, serta memengaruhi perkembangan fungsi paru. Penelitian ini bertujuan menganalisis tren publikasi, pola sitasi, distribusi negara, dan tema penelitian terkait paparan asap rokok orang tua dan asma pada anak. Analisis bibliometrik dilakukan menggunakan data Scopus periode 2015–2025. Sebanyak 484 artikel yang memenuhi kriteria inklusi dianalisis menggunakan VOSviewer untuk memetakan tren publikasi, kontribusi negara, keterkaitan kata kunci, dan perkembangan tema penelitian. Hasil menunjukkan jumlah publikasi tertinggi pada tahun 2022, yaitu 61 artikel. Amerika Serikat menjadi kontributor terbanyak dengan 119 artikel, diikuti Inggris sebanyak 70 artikel. Artikel Castro-Rodriguez et al. (2016), <i>Risk and Protective Factors for Childhood Asthma: What Is the Evidence?</i> , memperoleh sitasi tertinggi, yaitu 233 sitasi. Analisis kata kunci menunjukkan <i>children</i> , <i>maternal smoking</i> , <i>pregnancy</i> , <i>asthma</i> , dan <i>risk factors</i> sebagai tema dominan. Perkembangan tema menunjukkan meningkatnya perhatian terhadap paparan asap rokok prenatal dan postnatal serta kaitannya dengan asma dan kesehatan pernapasan anak. Secara keseluruhan, penelitian terkait paparan asap rokok orang tua dan asma pada anak berkembang selama 2015–2025. Pemetaan bibliometrik memberikan gambaran tren publikasi, negara kontributor, artikel berpengaruh, dan tema dominan sebagai dasar penelitian lanjutan serta strategi pencegahan berbasis keluarga

INTRODUCTION

Asthma is one of the most common chronic respiratory diseases affecting

children and remains an important public health problem worldwide. Childhood asthma can affect children's daily activities,

require long-term treatment, and reduce quality of life for children and their families. The burden of childhood asthma has encouraged extensive research to identify factors associated with its occurrence and development, including environmental exposures and parental behaviors (Asher et al., 2021). This high incidence makes asthma a significant public health problem significant because it has an impact on increasing hospitalization rates, the need for long-term treatment, and impaired quality of life for children and their families.

Exposure to secondhand smoke (SHS) is one of the environmental factors that has received considerable attention in research on childhood asthma. Children may be exposed to cigarette smoke during pregnancy and after birth, particularly when parents or other household members smoke. Previous research has examined the relationship between parental smoking during pregnancy, smoking cessation, and the risk of childhood asthma. Children are particularly vulnerable to the harmful effects of SHS because their respiratory systems are still developing (Shrivastava et al., 2025)

Research on cigarette smoke exposure and childhood asthma has continued to develop across different exposure periods, health outcomes, and research approaches. Recent studies have increasingly examined the use of biomarkers to assess tobacco smoke exposure in children and its relationship with healthcare utilization.(Merianos et al., 2025) investigated tobacco smoke exposure biomarker profiles and healthcare

utilization patterns among U.S. children, demonstrating the development of research toward more objective measures of exposure and their relationship with healthcare outcomes. This development indicates that research in this field has expanded beyond identifying the association between parental smoking and childhood asthma to examining more specific approaches for assessing exposure and its potential implications for child health.

Despite the growing body of literature on parental cigarette smoke exposure and childhood asthma, the research field remains fragmented across different populations, exposure periods, health outcomes, and geographical settings. Most previous studies have focused on specific associations between parental smoking or secondhand smoke exposure and respiratory outcomes in children. While these studies have contributed important epidemiological evidence, they provide limited insight into the broader development of scientific research in this area. In particular, the evolution of research productivity, citation impact, geographical contributions, and thematic relationships has not been comprehensively mapped.

This gap highlights the need for a bibliometric approach to systematically examine the structure and development of the literature. Bibliometric analysis enables the assessment of scientific productivity through publication trends and citation patterns, while geographical analysis can identify the distribution of research contributions across countries. In addition,

keyword co-occurrence analysis can reveal relationships among frequently studied topics and help identify the main research themes within the field. These indicators provide a broader perspective on the development of scientific knowledge than can be obtained from individual epidemiological studies.

The present study therefore uses bibliometric analysis to examine how research on parental cigarette smoke exposure and childhood asthma has developed over time and across different research dimensions. Particular attention is given to publication productivity, citation impact, geographical distribution, and keyword relationships. The analysis also considers the development of research topics to distinguish established areas of investigation from themes that have gained attention more recently. This mapping can provide a clearer understanding of the structure of the field and identify areas that remain insufficiently explored.

Accordingly, this study aims to analyze the scientific literature on parental cigarette smoke exposure and childhood asthma indexed in the Scopus database from 2015 to 2025. The specific objectives are to examine annual publication trends, identify highly cited publications and citation patterns, assess the geographical distribution of research output, and map the relationships and development of research themes through keyword co-occurrence analysis using VOSviewer. By integrating these indicators, the study is expected to provide a comprehensive map of the

research landscape and establish a basis for identifying priorities for future research.

METHOD

Quantitative bibliometric design with a descriptive-exploratory approach to analyze publication trends, citation patterns, country distribution, and the development of research themes concerning the relationship between secondhand smoke exposure and asthma in children. The bibliometric approach was chosen because it provides a systematic method for mapping the development of scientific literature through the analysis of publication metadata and citation indicators (Castro-Rodriguez et al., 2016). The focus on childhood asthma was based on evidence showing that exposure to tobacco smoke, both prenatally and postnatally, is associated with an increased risk of respiratory morbidity and asthma in children (Harju et al., 2016)

Data were obtained from the Scopus database, which was selected because of its broad coverage of reputable international journals and the availability of comprehensive citation metadata suitable for bibliometric analysis (Zanobetti et al., 2024). The search strategy used a combination of Boolean operators (AND, OR) with the keywords “cigarette smoke,” “tobacco smoke,” “passive smoking,” and “parental smoking,” combined with “childhood asthma” and “asthma in children.” The search was limited to publications published between 2015 and 2025, document types Article and Review, subject areas Medicine and Nursing, and English language.

The publication selection process was documented using a PRISMA flow diagram to provide a transparent description of the identification, screening, and selection of publications included in the bibliometric dataset. The initial search identified 1,297 records from the Scopus database. The records were subsequently filtered according to publication year (2015–2025), subject area (Medicine and Nursing), document type (Article and Review), and language (English). The filtering process resulted in 813 records being excluded, leaving 484 records for screening.

The exclusion records associated with each filtering criterion were reported as 685 records based on publication year, 780 based on subject area, 795 based on document type, and 813 based on language. These values represent the records excluded according to the respective filtering criteria and were not calculated as sequential subtractions.

The 484 remaining records were screened based on their titles and abstracts to assess their relevance to parental cigarette smoke exposure and childhood asthma. All records that passed the screening stage proceeded to eligibility assessment, and no additional records were excluded at this stage. Therefore, the final dataset consisted of 484 publications included in the bibliometric analysis.

The inclusion criteria comprised research articles and review articles examining the association between parental smoking, secondhand smoke exposure, or cigarette smoke exposure and childhood asthma or wheezing, including prenatal and

postnatal exposure (Vardavas et al., 2016). The inclusion of both Article and Review document types was intentional; therefore, the study did not restrict the dataset to original research articles only. The exclusion criteria included editorials, letters to the editor, conference papers, duplicate publications, and studies that did not directly address childhood asthma or related respiratory outcomes. The metadata extracted from Scopus included author names, year of publication, institutional and country affiliation, journal name, number of citations, journal quartile ranking based on Scimago Journal Rank (SJR), and author keywords. The bibliometric indicators analyzed included annual publication trends, total and average citations, highly cited publications, country distribution, and the dataset h-index (Thacher et al., 2016).

Descriptive statistical analysis was performed using Microsoft Excel to calculate frequencies, percentages, citation counts, and annual publication trends. VOSviewer was used to visualize keyword relationships and thematic development in the research field.

The bibliometric analysis applied keyword co-occurrence analysis to identify relationships among frequently occurring keywords and to determine dominant and emerging research themes. The results were presented using keyword network, overlay, and density visualizations. The analysis was used to identify dominant keywords, relationships among research concepts, and the development of research themes throughout the 2015–2025 publication period. The search strategy,

selection criteria, metadata extraction, and analytical procedures were documented systematically to improve the transparency, consistency, and reproducibility of the bibliometric analysis.(Castro-Rodriguez et al., 2016).

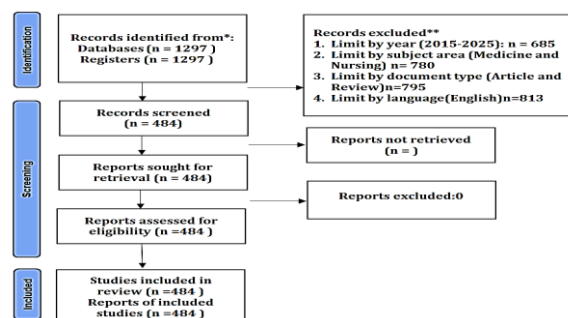


Figure 1. Prism Flowchart

RESULTS AND DISCUSSION

Table 1. Most cited articles

No	Document Title	Authors/Year	Source	Cited by	Quartile
1.	Risk and Protective Factors for Childhood Asthma: What Is the Evidence?	Castro-Rodriguez, Jose A.Forno,Erick;Rodriguez-Martinez, Carlos E.;Celedón, Juan C.2016	Journal of Allergy and Clinical Immunology: In Practice	233	Q1
2.	Smoke exposure, wheezing, and asthma development: A systematic review and meta-analysis in unselected birth cohorts	Silvestri,Michela;Franc hi, Sara;Pistorio,Angela;P etecchia,Loredana;Rusconi, Franca2015	Pediatric Pulmonology	121	Q1
3.	The independent role of prenatal and postnatal exposure to active and passive smoking on the development of early wheeze in children	Vardavas C.I.;Hohmann C.;Patelarou E.;Martinez D.;Henderson A.J2016	European Respiratory Journal	119	Q1
4.	A three-generation study on the association of tobacco smoking with asthma	Accordini, Simone Send mail to Accordini S. ;Calciano, Lucia;Johannessen, Ane;Portas,Laura;Benediktsd óttir, Bryndis 2018	International Journal of Epidemiology	110	Q1
5.	Changes in parental smoking during pregnancy and risks of adverse birth outcomes and childhood overweight in Europe and North America: An individual participant data meta-analysis of 229,000 singleton births	Philips, Elise M.;Santos, Susana;Trasande,Leonardo;A urrekoetxea, Juan J.;Barros, Henrique	PLoS Medicine	77	Q1
6.	Parental smoking, maternal alcohol, coffee and tea consumption during pregnancy, and childhood acute leukemia: the ESTELLE study	Orsi L. Send mail to Orsi L. ;Rudant J;Ajrouche R.;Leverger G.;Baruchel A.2015	Cancer Causes and Control	73	Q2
7.	Parental smoking and cessation during pregnancy and the risk of childhood asthma	Harju, Maijakaisa Keski-Nisula, LeeaGeorgiadis, LeenaHeinonen, Seppo 2016	BMC Public Health	68	Q1

8.	Parental smoking and development of allergic sensitization from birth to adolescence	Thacher J.D.Gruzieva O.;Pershagen G.;Neuman Å.;Van Hage M.2016	Allergy: European Journal of Allergy and Clinical Immunology	63	Q1
9.	Early-Life Exposure to Air Pollution and Childhood Asthma Cumulative Incidence in the ECHO CREW Consortium	Zanobetti, Antonella Ryan, Patrick H.;Coull, Brent A.;Luttmann-Gibson, Heike;Datta, Soma2024	JAMA Network Open	56	Q1
10.	Secondhand smoke and atrial fibrillation: Data from the Health eHeart Study	Dixit, Shalini;Pletcher, Mark J.;Vittinghoff, Eric;Imburgia, Kourtney;Maguire, Carol;2016	Heart Rhythm	56	Q1

Table 1 shows that the most frequently cited primary reference regarding parental smoking exposure to childhood asthma is a study conducted by(Castro-Rodriguez et al., 2016), which shows a total of 233 citations.

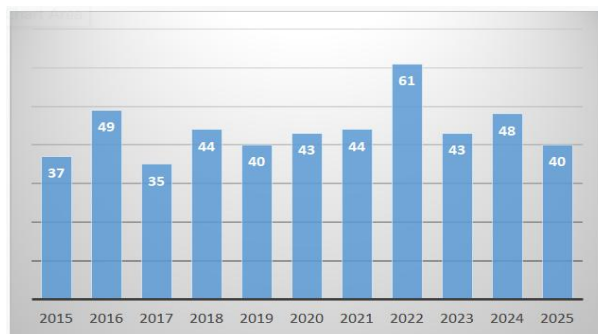


Figure 2. Publications by Year

Figure 2 shows that the highest number of publications occurred in 2022, with a total of 61 publications.



Figure 3. Publications by Country

Figure 3 shows the distribution of publications related to bibliometric analysis

of the literature on parental cigarette exposure and childhood asthma and COPD from 2015–2025. The United States had the highest number of publications, with 119, followed by the United Kingdom with 70.

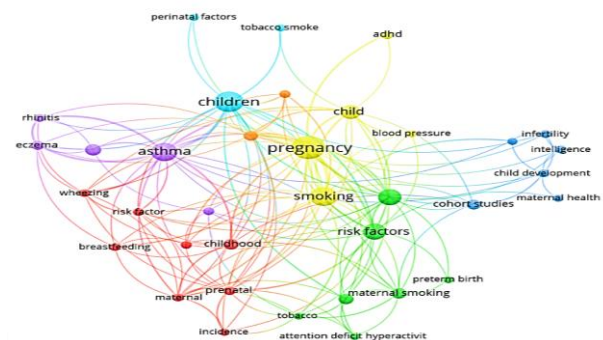


Figure 4. Keyword Network Visualization

Figure 4 shows a visualization of the network of relationships between keywords in the study of parental smoking exposure and childhood asthma.

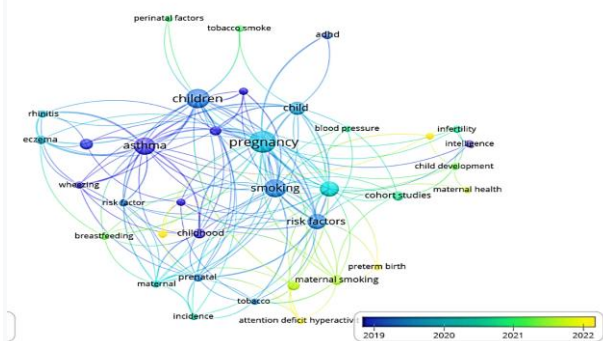


Figure 5. Development of research themes based on keywords during the 2019–2022 period

Figure 5 shows that in the 2019–2020 period, the most frequently discussed keywords were asthma, children, and wheezing, while in the 2021–2022 period, the most frequently discussed keywords were maternal smoking, pregnancy, and risk factors.

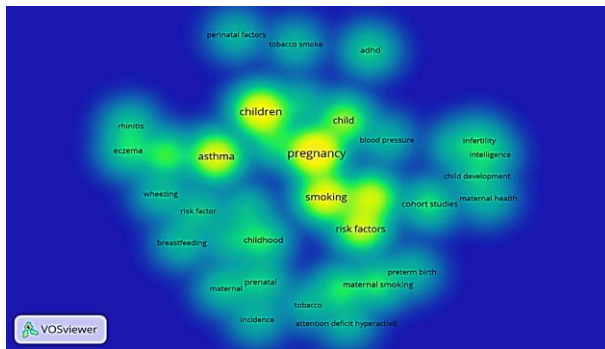


Figure 6. Research topic density based on keywords related to parental smoking exposure and childhood asthma

Figure 6 shows the density of research topics regarding parental smoking exposure and childhood asthma. Based on keywords, the most frequently discussed keywords were pregnancy, children, smoking, asthma, and risk factors.

The bibliometric findings demonstrate that research on parental cigarette smoke exposure and childhood asthma remained an active area of scientific investigation during the 2015–2025 period. Of the 1,297 records initially identified in the Scopus database, 484 publications met the predefined selection criteria and constituted the final dataset for analysis. The annual number of publications fluctuated throughout the study period, reaching a peak of 61 publications in 2022. Publication output subsequently declined to 43 publications in 2023, increased to 48 in 2024, and declined again to 40 in 2025. This

pattern indicates sustained research interest rather than a consistent year-on-year increase. The peak in 2022 suggests a period of particularly strong scientific attention to parental smoking, pregnancy, and childhood asthma.

Exposure to cigarette smoke during pregnancy has been shown to increase the risk of impaired lung development through inflammatory mechanisms and epigenetic changes. (Joubert et al., 2016) explained that nicotine and other toxic components of cigarette smoke can trigger changes in DNA methylation that affect the regulation of immune-related genes, thereby increasing susceptibility to asthma. This finding is supported by a meta-analysis by (Zhou et al., 2021) which showed that maternal smoking during pregnancy significantly increases the risk of wheezing and asthma in early childhood.

The keyword analysis provides further insight into the intellectual structure of this research field. The most prominent keywords included “children,” “asthma,” “smoking,” “maternal smoking,” “pregnancy,” and “risk factors.” The strong co-occurrence of these terms indicates that research has primarily focused on the relationship between parental smoking exposure and childhood asthma, with particular attention to maternal smoking during pregnancy. The prominence of maternal smoking and pregnancy suggests that researchers increasingly consider the timing of exposure and the prenatal period when investigating childhood asthma.

This pattern is consistent with several highly cited publications identified in the

present dataset. For example, (Castro-Rodriguez et al., 2016) examined risk and protective factors for childhood asthma, whereas (Vardavas et al., 2016) investigated the independent effects of prenatal and postnatal active and passive smoking on early wheezing. Similarly, (Harju et al., 2016) examined parental smoking and smoking cessation during pregnancy in relation to childhood asthma. The prominence of these publications within the citation structure indicates that early-life exposure and parental smoking have contributed substantially to the development of this research field.

The keyword network generated by VOSviewer further demonstrates that the research themes are closely interconnected rather than isolated. The relationships among maternal smoking, pregnancy, children, asthma, and risk factors indicate that parental smoking is increasingly examined within the broader context of early-life respiratory health. This finding represents an important feature of the current literature because it suggests a shift from viewing secondhand smoke as a single environmental exposure toward examining exposure according to its timing and environmental context. This interpretation is supported by (Li et al., 2022), who examined the association between prenatal or postpartum tobacco smoking exposure and allergic rhinitis in offspring, highlighting the importance of tobacco smoke exposure during different stages of early life. Similarly, (Reifenberg et al., 2023) examined the association between household secondhand smoke exposure and

lung function among children with cystic fibrosis, demonstrating the relevance of environmental tobacco smoke to pediatric respiratory health. Collectively, these studies illustrate the broader scope of research on parental and household tobacco smoke exposure and its potential implications for children's respiratory health.

The changing research priorities identified through the temporal keyword analysis are also reflected in studies examining the broader health effects of parental and environmental exposures. (Philips et al., 2020) demonstrated that parental smoking during pregnancy was associated with adverse birth outcomes and childhood overweight, with maternal smoking showing a dose-response relationship with these outcomes. The study also indicated that smoking cessation during the first trimester could reduce the risks of preterm birth and small for gestational age, although some risks remained compared with mothers who did not smoke. In addition, (Zanobetti et al., 2024) examined early-life exposure to air pollution and its association with cumulative childhood asthma incidence, indicating the importance of environmental exposures in understanding childhood asthma. Together, these findings support the thematic pattern identified in the present bibliometric analysis, in which maternal smoking, pregnancy, risk factors, and environmental exposure have become increasingly interconnected areas of research.

The keyword density visualization reinforces these findings by demonstrating a high concentration of research around pregnancy, children, smoking, asthma, and risk factors. The convergence of these terms indicates that early-life exposure and childhood asthma represent central areas of research within the dataset. At the same time, the prominence of “risk factors” suggests that the health effects of tobacco smoke exposure have been examined beyond respiratory outcomes alone. (Dixit et al., 2016), for example, investigated the association between secondhand smoke exposure and cardiovascular disorders, particularly atrial fibrillation, demonstrating that the potential health effects of tobacco smoke exposure may extend to other organ systems. Although this study did not specifically examine childhood asthma, its inclusion among the highly cited publications in the dataset reflects the broader health implications associated with secondhand smoke exposure. The present bibliometric analysis therefore highlights the interconnected nature of research on smoking exposure and its diverse health outcomes.

The citation analysis provides another perspective on the development of the field. (Castro-Rodriguez et al., 2016) was the most-cited publication in the dataset, with 233 citations, followed by (Silvestri et al., 2015) with 121 citations, (Vardavas et al., 2016) with 119 citations, (Accordini et al., 2018) with 110 citations, (Philips et al., 2020) with 77 citations, and (Orsi et al., 2015) with 73 citations. Most of the highly cited publications were published in

Q1 journals, including the Journal of Allergy and Clinical Immunology: In Practice, Pediatric Pulmonology, European Respiratory Journal, International Journal of Epidemiology, and PLoS Medicine. (Orsi et al., 2015) was published in Cancer Causes and Control and classified as Q2. This concentration indicates that influential research in this field has been predominantly disseminated through high-impact international journals. The citation pattern also suggests that research addressing childhood asthma risk factors, early-life smoke exposure, wheezing, parental smoking during pregnancy, and related child health outcomes has played an important role in shaping the knowledge base of the field.

The country analysis revealed a substantial concentration of publication output among a limited number of countries. The United States contributed 119 publications, making it the leading publishing country, followed by the United Kingdom with 70 publications. This distribution suggests that research productivity in this field is concentrated in countries with well-established research infrastructures and strong publication capacity. However, the available country-level data are insufficient to support a definitive conclusion that developing countries are globally underrepresented. Such a conclusion would require comprehensive publication data for all countries, together with contextual indicators such as population size, smoking prevalence, childhood asthma burden, and research capacity. Therefore, the present

finding is more appropriately interpreted as evidence of geographical concentration in research output.

This geographical concentration is relevant to the broader context of tobacco-control research. (Flor et al., 2021) examined the effects of tobacco-control policies on global smoking prevalence, highlighting differences in tobacco-control contexts across countries. Nevertheless, the present bibliometric dataset does not permit a direct comparison between national smoking prevalence and research productivity. Future bibliometric research could therefore integrate publication data with country-level indicators, including smoking prevalence, tobacco-control policies, childhood asthma prevalence, and research capacity. Such an approach would provide stronger evidence regarding whether specific populations or geographical regions are insufficiently represented in the international literature.

The VOSviewer overlay visualization also indicates an emerging interest in multiple environmental exposures. The presence of environmental exposure-related terms alongside smoking, pregnancy, and childhood asthma suggests that recent research increasingly considers cigarette smoke within a broader environmental context. This development is reflected in studies such as (Zanobetti et al., 2024), which investigated early-life exposure to air pollution in relation to cumulative childhood asthma incidence. Similarly, (Dai et al., 2021) examined household air pollution in relation to asthma and lung function decline. These

studies are relevant to the present bibliometric findings because they illustrate the broader environmental perspective emerging within childhood asthma research. Importantly, the bibliometric results indicate that this broader perspective is becoming increasingly integrated with research on parental smoking and early-life exposure.

Several research gaps can be identified from the bibliometric findings. First, although maternal smoking and pregnancy emerged as prominent research themes, further investigation is needed to examine prenatal and postnatal exposure as a continuum and to distinguish the potential contribution of different exposure periods. Second, the emergence of multiple environmental exposure-related terms indicates a need for research that considers parental cigarette smoke exposure together with other environmental factors. Third, the concentration of publications in the United States and the United Kingdom highlights the need for broader geographical representation in future research. However, this issue should be investigated using comprehensive country-level data rather than inferred solely from the publication output of the leading countries.

The findings also have implications for nursing and public health research. The prominence of maternal smoking, pregnancy, children, and asthma suggests that future research should place greater emphasis on family-based prevention, parental smoking cessation, and the establishment of smoke-free home environments. The importance of smoking

cessation during pregnancy is also reflected in (Harju et al.,2016), which specifically investigated parental smoking and cessation during pregnancy in relation to childhood asthma. In addition, (Booalayan et al., 2020) examined the association between environmental tobacco smoke exposure and asthma prevalence among adolescents, highlighting the importance of investigating tobacco exposure within specific population and contextual settings. These findings support the development of research that links epidemiological evidence with practical prevention strategies involving families and healthcare professionals.

From a nursing perspective, future research should move beyond documenting associations between parental smoking and childhood asthma and increasingly evaluate the effectiveness of family-based smoking cessation interventions, parental education, household smoke-free strategies, and community-based prevention programs. The prominence of pregnancy and maternal smoking within the bibliometric structure suggests that interventions initiated during the prenatal period may represent an important area for further investigation. Research should also assess how nurses and other healthcare professionals can support parents in reducing household tobacco smoke exposure and improving adherence to smoke-free practices.

Overall, the present bibliometric analysis demonstrates that research on parental cigarette smoke exposure and childhood asthma has developed into a multidimensional field. The analysis of 484

publications published between 2015 and 2025, the peak of 61 publications in 2022, the dominance of keywords related to children, asthma, smoking, maternal smoking, pregnancy, and risk factors, and the concentration of highly cited studies in Q1 journals collectively demonstrate the major characteristics of the field. The temporal shift from asthma, children, and wheezing during 2019–2020 toward maternal smoking, pregnancy, and risk factors during 2021–2022 further indicates increasing attention to early-life determinants. These findings provide a basis for future research to broaden geographical coverage, examine prenatal and postnatal exposure across the life course, investigate interactions between cigarette smoke and other environmental exposures, and develop evidence-based family- and community-level prevention strategies.

CONCLUSION

This bibliometric analysis identified 484 publications on parental secondhand smoke exposure and childhood asthma indexed in the Scopus database between 2015 and 2025. Publication output fluctuated throughout the study period and reached its highest level in 2022, with 61 publications. The citation analysis showed that (Castro-Rodriguez et al.,2016) was the most highly cited study, with 233 citations, while the United States was the leading country by publication output, with 119 publications, followed by the United Kingdom, with 70 publications. The VOSviewer analysis identified children, asthma, smoking, maternal smoking,

pregnancy, and risk factors as the dominant research themes, with increasing attention to maternal smoking and pregnancy during the later years of the analysis.

These findings indicate that research on parental secondhand smoke exposure and childhood asthma has evolved substantially, particularly around early-life and prenatal exposure. The geographical concentration of publications highlights the need for broader research coverage across different countries and settings. Future studies should expand the evidence base in developing countries, investigate prenatal and postnatal exposure within the same research framework, and examine parental smoking in relation to other environmental risk factors. Expanding research in these areas may provide more context-specific evidence to support the prevention of secondhand smoke exposure within families and the development of strategies to reduce the burden of childhood asthma

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