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GLOBAL TRENDS AND THEMATIC SHIFTS IN SCHOOL REFUSAL INTERVENTIONS: A BIBLIO-METRIC ANALYSIS FROM 1967 – 2025

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ABSTACT: This study conducted a bibliometric analysis of 436 Scopus-indexed articles on school refusal interventions published between 1967 and 2025. Results indicate rapid growth in this field since 2016, with research primarily concentrated in medicine and psychology, supplemented by social sciences. Regionally, North America, Europe, and Australia form the core distribution. Keyword analysis identified six thematic clusters, with "school refusal," "anxiety," and "adolescents" serving as core hubs, while "intervention" acted as a cross-domain connector. Research trends have shifted from "school phobia" toward multidimensional and systemic explorations, though gaps remain in qualitative studies, prevention strategies, and long-term adaptation. This study presents the first comprehensive knowledge map of school refusal interventions, establishing an evidence foundation for future interdisciplinary, context-sensitive, and methodologically diverse research and policy innovation.
Keywords: School refusal, Intervention, Bibliometric analysis, VOSviewer, Educational psychology

1 INTRODUCTION

School education plays a foundational role in both individual development and the functioning of modern societies. Beyond academic instruction, schools provide critical contexts for socialisation, emotional growth, and identity formation (Valiente et al., 2020; Verhoeven et al., 2019). Attending school regularly is not only essential for students' academic achievement but also supports their mental health and long-term life outcomes (Allison et al., 2019; Y. Chen et al., 2021; Korpershoek et al., 2020). However, for a subset of children and adolescents, this process is disrupted by an inability or unwillingness to attend school—a phenomenon commonly referred to as school refusal. This term describes emotionally motivated absenteeism, often associated with anxiety, depression, or other psychological difficulties, rather than deliberate truancy or defiance (Di Vincenzo et al., 2024; Li et al., 2023; Tekin & Aydın, 2022). School refusal poses significant challenges for educators, families, and mental health professionals, and it can lead to prolonged school absence, social isolation, academic underachievement, and even early school leaving if left unaddressed.

In recent years, school refusal has received growing attention from researchers across the fields of educational psychology, clinical psychology, child psychiatry, and school counselling (e.g., Benoit et al. 2024; Eroglu et al. 2025; Wang et al. 2024). Studies have explored its prevalence, diagnostic criteria, psychological correlates, and risk factors. A consensus has emerged that school refusal is not a unitary phenomenon, but a multidimensional construct influenced by individual vulnerabilities (Liu et al., 2021), family dynamics (J. Chen et al., 2024; Hughes et al., 2022), and school environment factors (Y. Chen et al., 2021; Korpershoek et al., 2020). Classification systems such as the functional model proposed by Kearney and Silverman (Kearney & Silverman, 1990) have helped frame school refusal in terms of underlying motivations, including avoidance of negative affectivity, escape from social evaluation, and pursuit of parental attention or tangible rewards. These conceptual advances have laid the groundwork for increasingly targeted and individualised interventions.

Given the multifactorial nature of school refusal, effective intervention requires strategies that address both individual psychopathology and broader systemic influences. Over the past decades, educators and researchers have explored multiple intervention pathways. Elliott and Place (Elliott & Place, 2019), in their comprehensive review, identified cognitive behavioural therapy (CBT)—particularly when integrating graduated exposure, cognitive restructuring, and social skills training—as the most empirically supported first-line approach, with multiple randomised controlled trials demonstrating moderate improvements in school attendance (Maynard et al., 2018). The role of the family system has also been highlighted: although stand-alone "family therapy" lacks robust high-quality evidence, incorporating parent-focused modules within a CBT framework has yielded additional attendance gains in certain samples (HEYNE et al., 2002). For adolescents

with comorbid anxiety or depression, selective serotonin reuptake inhibitors (SSRIs) have been trialled as adjunctive pharmacological treatments; however, an RCT by Melvin et al. (Melvin et al., 2017) found that adding fluoxetine to CBT did not significantly enhance attendance or psychological outcomes. At a systemic level, Kearney and Graczyk (Kearney & Graczyk, 2014) proposed applying the Response-to-Intervention (RTI) model to school refusal, aiming for early identification and evidence-based support through tiered assessment and service delivery. Yet, as Elliott and Place (Elliott & Place, 2019) noted, practical barriers to cross-sector collaboration—spanning education, mental health, and judicial systems—limit the feasibility and scalability of such frameworks. Overall, while Cognitive Behavioural Therapy (CBT) and integrated family–school approaches have demonstrated promising outcomes, the active ingredients, optimal sequencing, and cultural adaptability of interventions remain insufficiently established. This fragmented evidence base underscores the need for a comprehensive bibliometric analysis to map the field's evolution, identify thematic convergences and gaps, and inform more coordinated research and practice agendas.

For the specific theme of school refusal interventions, bibliometric research remains absent. While previous scholars (Ulaş et al., 2024) have applied bibliometric methods to map the broader field of school refusal, for example, visualising global collaboration networks, thematic evolution, and methodological hotspots, these studies focus on the general phenomenon rather than its intervention strategies. However, the absence of a bibliometric and science mapping analysis specifically targeting school refusal interventions means that the field lacks a systematic understanding of its intellectual structure, thematic evolution, and collaborative landscape. Addressing this gap is essential for consolidating existing evidence, identifying underexplored domains, and guiding the development of coordinated, cross-sector intervention strategies.

To address this gap, the present study conducts a bibliometric and science mapping analysis of global research on school refusal interventions. Specifically, the study addresses the following questions:

(1) What are the publication trends, geographic distribution, and leading contributors in school refusal intervention research?
(2) What are the dominant research themes, and how have they evolved over time?
(3) What collaboration patterns exist among countries, institutions, and authors?
(4) What gaps remain, and what directions should be prioritised for future studies?

The primary aim is to provide a comprehensive overview of the field's intellectual structure, thematic evolution, and collaboration networks, thereby establishing an evidence-based foundation for future research and policy development. Through this analysis, we hope to offer valuable insights for researchers, practitioners, and policymakers invested in understanding and addressing school refusal. The findings may inform the design of more integrated and interdisciplinary interventions, encourage international collaboration, and support the advancement of a coherent research agenda in this critical area of educational and psychological inquiry.

2 METHODOLOGY

This study adopts a bibliometric research design to systematically map and analyse the existing body of literature on school refusal and related interventions. Bibliometric analysis is a quantitative method used to assess the development, structure, and impact of research in a specific field by analysing publication and citation data (Donthu et al., 2021). It is particularly suited for capturing the intellectual structure, thematic evolution, and research trends within a specific field over time. Unlike narrative or systematic reviews, bibliometric approaches enable researchers to identify key trends, influential authors, core journals, and collaborative networks, offering a macro-perspective understanding of the intellectual landscape (K. Wang et al., 2022).

Given the growing academic attention to school refusal and the expanding volume of related literature, a bibliometric approach is particularly suitable for systematically examining research trends, intervention strategies, and collaborative patterns in this domain. This study applies bibliometric analysis to provide a structured overview of existing research on interventions for school refusal, thereby uncovering the most popular theme, research gaps, and potential directions for future research. In this study, analysis (e.g., publication trends, citation counts) and science mapping (e.g., keyword co-occurrence, co-authorship) were employed to provide a comprehensive overview of the research landscape in school refusal interventions.

2.1 Data Source and Search Strategy

The Scopus database was selected as the data source for this study due to its comprehensive coverage of peer-reviewed journals, high-quality citation data, and structured metadata, which are essential for reliable bibliometric analysis (Zyoud, 2021).

Compared to other databases such as Web of Science (WoS) and PubMed, Scopus offers several strengths that align more closely with the objectives of this study. First, Scopus provides the broadest multidisciplinary coverage, indexing approximately 289,000 active journals, according to Elsevier (February 2025), across medicine, psychology, education, and social sciences, whereas PubMed is restricted primarily to biomedical sources and WoS includes fewer journals overall. This breadth is essential for a topic such as school refusal intervention, which spans health, psychology, and education. Second, Scopus offers more comprehensive

citation data, particularly for non-English and international publications, which allows for a more inclusive mapping of global research trends (Baas et al., 2020; Falagas et al., 2008). Third, Scopus integrates advanced bibliometric functionalities, including author and institutional profiling, collaboration mapping, and citation analysis, which directly support science mapping approaches (Mongeon & Paul-Hus, 2016). By contrast, while WoS provides curated, high-impact coverage, its more selective indexing may underrepresent emerging or practice-oriented literature, and PubMed lacks comparable citation-tracking tools (Baas et al., 2020). Therefore, Scopus is particularly well suited to ensure both the breadth and depth required for a comprehensive bibliometric and science mapping analysis of school refusal interventions.

Based on the strengths, Scopus is the most suitable database for this study, as it ensures both the breadth and depth of the literature review.

The search strategy was designed to capture a comprehensive range of studies on school refusal and its related interventions. "School refusal" has achieved broad conceptual consensus, defined primarily by emotional distress and absenteeism, and is further recognised as an umbrella term encompassing multiple functional pathways of non-attendance (Heyne et al., 2019). The inclusion of the term "school avoidance" ensured coverage of studies adopting alternative but closely related terminology. Given the diversity of intervention approaches documented in the literature, which includes pharmacotherapy, Cognitive Behavioural Therapy (CBT), and behavioural methods such as systematic desensitisation and contingency management, and for parent training, the broader terms include "treatment," "prevention," "counselling," "therapy," and "support" were incorporated (Nuttall & Woods, 2013). This ensured that both evidence-based and practice-based perspectives could be captured, consistent with calls for ecologically valid and transferable evidence. Accordingly, the Boolean search string was defined as: ("school refusal" OR "school avoidance") AND ("treatment" OR "prevention" OR "counselling" OR "therapy" OR "support"). The full search strategy for extracting data from SCOPUS is presented in Appendix A.

The scope of data was limited to document type in "journal articles" and language in "English". The search was initiated on July 27, 2025. The data range was between 1967 and July 2025 in Scopus. As of the date of retrieval, a total of 635 documents were initially identified. After filtering by document type (article), language (English), and source type (journal), 436 articles remained for analysis.

2.2 Data Processing and Term Standardisation

This process was carried out manually using Microsoft Excel, based on expert reading of frequently occurring terms. Specifically, synonymous or variant expressions were merged into unified terms: adolescent, adolescence, and youth were standardised as adolescents; anxiety disorder and anxiety disorders as anxiety; autism as autism spectrum disorder; CBT as cognitive behavioural therapy; and school absenteeism as absenteeism.

This step improved the accuracy and interpretability of co-occurrence networks generated in VOSviewer, ensuring that semantically similar concepts were grouped under unified labels.

2.3 Tools and Software

The bibliometric analysis and visualisation were conducted using VOSviewer version 1.6.20, a widely used open-source software for constructing and visualising bibliometric networks. VOSviewer enables the creation of science maps based on co-authorship, co-citation, and co-occurrence data, offering a graphical representation of relationships among authors, institutions, countries, or terms.

In this study, VOSviewer was used primarily for co-occurrence analysis of author keywords, which allows identification of thematic clusters, knowledge structures, and research hotspots. The visualisations are based on a layout algorithm where the distance between nodes reflects the strength of their association—closer terms are more frequently co-occurring. The size of each node represents its occurrence frequency, while links indicate co-occurrence ties.

3 RESULT

3.1 Publication Trends
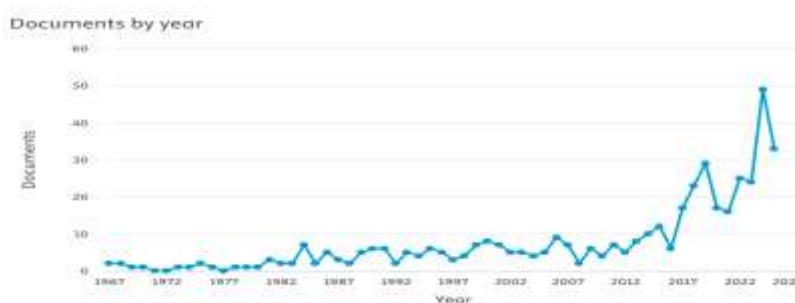
An analysis of the annual publication trends in research on school refusal intervention reveals a clear developmental trajectory characterised by three distinct phases: an initial exploratory stage, a period of gradual growth, and a recent phase of accelerated expansion (see Figure 1). The earliest relevant publication appeared in 1967. From 1967 to 2005, the field remained in its infancy, with fewer than five publications per year on

average, indicating a fragmented and sporadic research landscape. Between 2006 and 2015, annual outputs increased from 6 to 12 publications, suggesting that scholarly interest in the topic was gradually taking shape. A marked surge began in 2016: the five-year period from 2016 to 2020 witnessed a total of 92 publications, averaging 18.4 per year—more than double the output of the preceding five-year span (2011–2015, 43 publications). Between 2021 and 2025, the field recorded 123 publications (an average of 30.8 per year), with a peak of 49 papers in 2024 and a sustained high in 2025 (33 papers). Overall, 72.8% of all documents over the past 56 years were published in the last decade (2016–2025), underscoring the emergence of school refusal interventions as a prominent topic in both educational psychology and public health. This surge may reflect broader systemic and methodological changes in the field, which will be further discussed in the following section.

3.2 Subject Area Distribution

Research on school refusal interventions spans across 17 subject areas, reflecting a distinctly interdisciplinary structure dominated by medicine and psychology, with notable contributions from the social sciences and education. Specifically, Medicine accounts for 257 publications (37.7%) and Psychology for 239 (35.0%), together contributing over 70% of the total output. This indicates that the topic attracts considerable attention within both disease-treatment frameworks and behavioural-psychological paradigms.

The Social Sciences rank third, with 99 publications (14.5%), reflecting sustained interest from fields such as education, sociology, and social policy in the broader environmental and institutional contexts surrounding school refusal. While Neuroscience (25 publications) and Nursing (13 publications) constitute smaller proportions, their presence suggests an emerging integration of neurobiological mechanisms and care-based practices into the research agenda.

Moreover, the appearance of publications in Arts and Humanities, Computer Science, and Engineering, albeit limited in number, points to a widening recognition of school refusal as a complex phenomenon that intersects with technological interventions, cultural diversity, and ethical considerations.

Overall, the long-tail distribution of subject areas confirms the multidimensional nature of school refusal and highlights a growing foundation for future cross-disciplinary collaboration among medical, psychological, and social science domains.

3.3 Most Cited Articles and Most Prolific Authors

TABLE 1 Most Cited Articles

No.	Title	Authors	Year	Cited by
1	The teacher-child relationship and children's early school adjustment	Birch & Ladd	1997	1133
2	Having Friends, Keeping Friends, Making Friends, and Being Liked by Peers in the Classroom	Ladd	1990	680
3	School refusal and psychiatric disorders: A community study	Egger et al.	2003	405
4	CBT of school-refusing children: A controlled evaluation	King et al.	1998	214
5	The functional profiles of school refusal behaviour: Diagnostic aspects	Kearney & Albano	2004	210
6	Differentiation Between School Attendance Problems: Why and How?	Heyne et al.	2019	204
7	Bashful Boys and Coy Girls: A Review of Gender Differences in Childhood Shyness	Doey et al.	2014	180
8	School Refusal in Anxiety-Disordered Children and Adolescents	Last & Strauss	1990	176
9	Psychiatric features of children and adolescents with pseudo seizures	Wyllie et al.	1999	163
10	Imipramine plus CBT in the treatment of school refusal	Bernstein et al.	2000	161

*Source: Authors' own creations

Table 1 presents the ten most cited publications within the dataset, offering insight into the foundational and highly influential works in the field of school refusal interventions. These articles span from 1990 to 2019, highlighting the long-standing and evolving academic interest in this topic.

Topping the list is the seminal article by Birch and Ladd (1997), published in the Journal of School Psychology, which has garnered 1,133 citations. This study explores the role of teacher-child relationships in early school adjustment and underscores the foundational importance of social-emotional dynamics in the school setting. The second most cited article, Ladd (1990) in Child Development (680 citations), further elaborates on peer relationships as predictors of children's school engagement—together, these two works establish a strong psychosocial framework for understanding school refusal.

The third most cited article, Egger et al. (2003), in the Journal of the American Academy of Child and Adolescent Psychiatry (405 citations), shifts the focus toward the psychiatric correlates of school refusal behaviour, emphasising its diagnostic complexity within community settings. Several other highly cited articles—including Bernstein et al. (2000) and King et al. (1998)—evaluate the efficacy of cognitive behavioural therapy (CBT), either alone or in combination with pharmacological treatments, in managing school refusal, thereby laying the groundwork for intervention-based research.

The list also includes diagnostic and conceptual contributions, such as Kearney and Albano (2004), who proposed a functional model of school refusal behaviours, and Heyne et al. (2019), who emphasised the importance of distinguishing between different school attendance problems. Notably, while most articles are published in child and adolescent psychiatry or clinical psychology journals, several—such as those by Wyllie et al. (1999) and Doey et al. (2014)—extend the conversation to related issues like pseudo seizures and gender differences in childhood shyness, reflecting the field's interdisciplinary reach.

Overall, the most cited works collectively emphasise the complex interplay of emotional, social, and clinical variables in school refusal and continue to serve as key theoretical and empirical references for both diagnostic formulation and intervention design.

3.4 Geographical and Institutional Patterns

Research on school refusal interventions demonstrates a distinct tri-polar geographic distribution, with North America, Europe, and the Asia-Pacific emerging as the primary contributors. The United States leads by a considerable margin with 161 publications, accounting for 34.8% of the total corpus, far surpassing the United Kingdom (56 publications, 12.1%) and Australia (53 publications, 11.4%). This reflects the United States' dominant position in terms of research funding, clinical trial infrastructure, and evidence-based intervention systems.

Next in prominence are Japan (51 publications, 11.0%) and France (22 publications, 4.7%), representing major research hubs in the Asia-Pacific and continental Europe, respectively. The Netherlands (21), Spain (15), and the Nordic countries—Norway (11), Sweden (8), and Denmark (4)—together form a secondary cluster within the European region, indicating strong regional coordination under EU initiatives focused on child mental health and school attendance policies.

Notably, China (12 publications), Turkey (11), and Canada (9) also appear among the top ten contributors. This suggests a growing policy and academic interest in school attendance issues among both high-income and upper-middle-income countries. Meanwhile, emerging economies such as India, South Africa, and Ecuador, though contributing only 2–6 publications each, signal a gradual diffusion of the topic into the Global South, albeit at an early stage of development.

Collectively, the top ten countries account for 417 publications, or 90.0% of all documents with identifiable country affiliations. This high degree of geographic concentration underscores the uneven distribution of research resources, while simultaneously highlighting the urgent need for multi-centre collaboration and contextualised intervention research in underrepresented regions, particularly Africa, Latin America, and South Asia.

Institutional co-authorship analysis reveals a globally distributed research network in school refusal interventions, anchored by three dominant regional hubs: Australia, Europe, and North America. The top 10 institutions by publication volume together account for 20.4% of the total dataset, indicating a moderate level of institutional concentration.

In the Southern Hemisphere, Monash University and Deakin University lead the Australian bloc, jointly contributing 35 publications and forming the most prolific institutional cluster in the region. In Europe, Leiden University (Netherlands) and the University of Alacant (Spain) emerge as key centres of output, reflecting the European Union's policy focus on child mental health and school attendance initiatives.

In North America, the publication count ties four U.S.-based institutions in fifth place. Notably, Yale University and Virginia Tech stand out for their roles in clinical trials and the development of intervention technologies. Additionally, Inserm and the Epidemiology et Santé des Populations unit (France) represent active public medical research entities, exemplifying the deep involvement of the public health sector in European school refusal studies.

Taken together, the top ten institutions reflect a cross-continental distribution of research productivity and collaboration. This decentralised, multi-centred structure not only illustrates the international relevance of school refusal as a research agenda but also lays a solid institutional foundation for future large-scale, cross-national trials and evidence-informed policy development.

3.5 The co-occurrence Analysis

The keyword co-occurrence network generated by VOSviewer comprised 31 nodes and 96 links, with an overall network density of 0.202, indicating a moderate level of interconnection among high-frequency topics. The modularity value (Q) reached 0.628 (>0.3), suggesting a well-defined thematic structure and enabling the identification of six statistically significant clusters. The network's average weighted degree was 6.19, with "school refusal" and "anxiety" emerging as the most influential nodes, exhibiting total link strengths of 214 and 130, respectively. These two nodes form the central hubs of the network, reflecting their pivotal roles as both key research foci and conceptual anchors in the field.
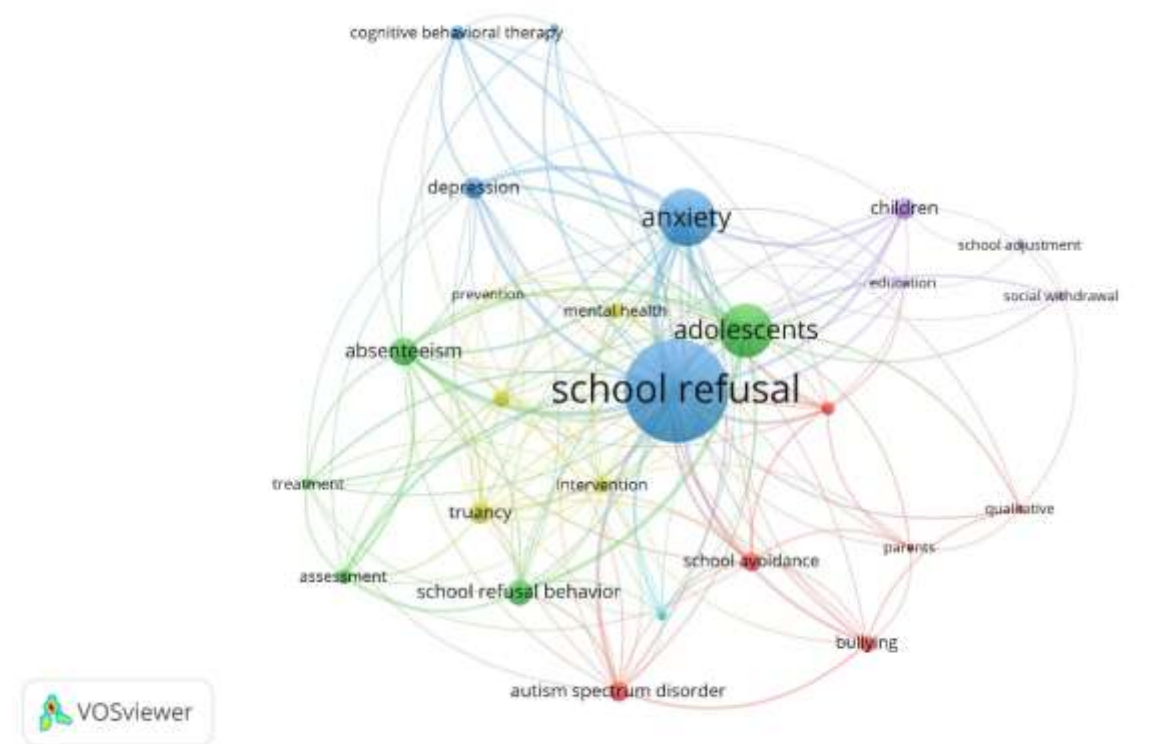
FIGURE 2 Keyword Co-occurrence and Thematic Clusters
*Source: Calculated by the author using VOSviewer

3.5.1 Clustering of Research Themes

Based on VOSviewer's clustering algorithm, the network was divided into six functionally oriented clusters according to co-occurrence strength and semantic similarity.

Cluster 1 focuses on neurodiversity and school bullying, centred around the keywords "autism spectrum disorder," "bullying," and "school avoidance," suggesting a shift in the literature from a purely emotional perspective toward interactions between neurodevelopmental conditions and the social-ecological context.

Cluster 2 represents the assessment–intervention pathway, encompassing "absenteeism," "assessment," "treatment," and "school refusal behaviour" and highlighting the development of evidence-based diagnostic tools and targeted intervention programmes.

Cluster 3 addresses emotional–cognitive mechanisms, comprising "adolescents," "anxiety," "depression," "cognitive behavioural therapy," and "child," indicating that adolescent emotional disorders and the mechanisms underlying CBT efficacy remain central theoretical concerns.

Cluster 4 reflects system-level prevention and intervention, integrating "intervention," "mental health," "prevention," and "truancy," and underscoring the role of multi-system collaboration—across schools, families, and communities—in addressing absenteeism.

Cluster 5 concerns developmental outcomes and education, with "children," "education," "social withdrawal," and "school adjustment" as key terms, pointing toward longitudinal research on academic and psychosocial adaptation.

Cluster 6 contains only "school phobia," a term with low occurrence and the earliest average publication year (2011), indicating that this historical concept is being gradually replaced by more precise terminology in line with evolving diagnostic frameworks.

3.5.2 Temporal Evolution of Research Topics

Figure 3 presents an overlay visualisation of the keywords, showing their average publication year (APY) and cluster distribution. Emerging topics (APY $\geq$ 2020) are concentrated in Cluster 1 (neurodiversity and school bullying) and Cluster 4 (system-level prevention and intervention), with representative nodes such as "autism spectrum disorder" (2022.0), "parents" (2022.2), and "qualitative" (2018.4). Earlier topics (APY $\leq$ 2013) are mainly located in Cluster 6 ("school phobia," 2011.8) and within Cluster 2, including "assessment" (2012.5) and "treatment" (2014.0).
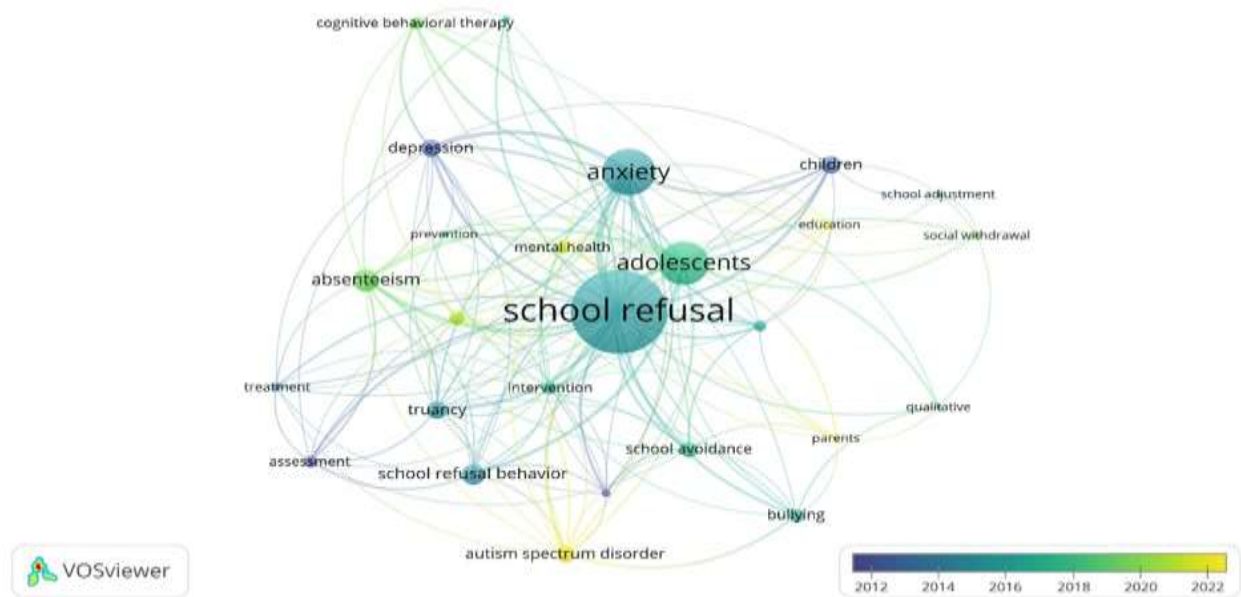
FIGURE 3 Temporal Evolution of Research Themes
*Source: Calculated by the author using VOSviewer

This temporal trajectory suggests three key shifts: (1) the research focus has moved from a single phobia-based model toward neurodevelopmental, socio-ecological, and multi-system intervention frameworks; (2) the rise of qualitative approaches in recent literature reflects an increasing demand for context-specific explanations of complex mechanisms; and (3) while the depression–anxiety pathway attracted early attention, it has recently been revisited through combined CBT–family interventions, representing an "old issues – new paradigms" transition in the field. Overall, these patterns indicate an expansion from narrowly defined clinical constructs toward more integrative and context-sensitive research directions.

3.5.3 Core–Periphery Structure and Hub Nodes

Centrality analysis based on Total Link Strength (TLS) revealed a pronounced core–periphery structure in the keyword co-occurrence network. TLS, as calculated by VOSviewer, measures the sum of co-occurrence link strengths between a given keyword and all other keywords, thereby indicating its overall connectivity within the network.

TABLE 2 Core–Periphery Structure and Hub Nodes

Node	Weighted degree	Occurrences	Functional role
school refusal	214	146	thematic gatekeeper
anxiety	130	70	emotional mechanism hub
adolescents	104	65	target population focal point
depression	52	21	comorbid affective disorder
intervention	29	13	intervention technique nexus

*Source: Authors' own creations

As shown in Table 2, the five nodes with the highest TLS values—school refusal (214), anxiety (130), adolescents (104), depression (52), and intervention (29)—collectively accounted for 529, representing 53.2% of the network's total connectivity. These keywords constitute the "core layer" of the network, while the remaining 26 nodes, each with a TLS below 30, form a sparse "peripheral layer."

Further inspection of the core layer suggests three notable patterns:

•   Primary hub function of "school refusal" – As the most connected node, school refusal directly links to all six thematic clusters identified earlier, underscoring its role as the conceptual anchor of the field.

•   Emotional–behavioural pathway – The strong connections between anxiety and depression indicate an "anxiety–school refusal–depression" triadic pathway, which may serve as a central framework for theoretical modelling and clinical hypothesis testing.

•   Bridging role of "intervention" – Despite its comparatively lower frequency, intervention exhibits links across multiple clusters (including system-level prevention, assessment–treatment, and developmental outcomes), highlighting its potential to foster interdisciplinary diffusion of intervention-focused research.

4 DISCUSSION

4.1 Emerging Research Dynamics and Driving Forces

The marked growth in publications on school refusal interventions over the past decade—particularly the surge since 2016—can be attributed to the interplay of four reinforcing forces: problem salience, policy impetus, methodological innovation, and technological catalysis.

First, problem salience has intensified globally, as rising rates of anxiety, depression, and school bullying among children and adolescents have drawn heightened public and scholarly attention. Especially after 2019, the Covid-19 pandemic, with its prolonged periods of remote learning, exacerbated school re-entry difficulties, transforming school refusal from an isolated clinical concern into a broader public health and educational issue (Havik & Ingul, 2021).

Second, policy impetus has been critical. Governments and educational authorities in North America, Europe, Japan, and China have introduced attendance accountability frameworks, compulsory education monitoring, and student mental health action plans (Kearney & Graczyk, 2020; Peycheva et al., 2023; Sälzer et al., 2024). These initiatives not only allocated targeted funding but also facilitated access to large-scale datasets, creating a policy–practice–research feedback loop.

Third, methodological innovation—notably the maturation of cognitive–behavioural therapy protocols, multi-systemic interventions, and school–family–community collaboration frameworks—has enabled more rigorous evaluations (Leduc et al., 2024). The increasing adoption of randomised controlled trials and mixed-methods designs has lowered publication barriers and improved the reproducibility and generalisability of findings (Van Scoy et al., 2021).

Finally, technological catalysis has accelerated research cycles. Digital screening tools, online therapy platforms, and big-data-driven risk monitoring systems have allowed researchers to identify high-risk students more efficiently, track longitudinal outcomes, and disseminate intervention results rapidly (Henrikson et al., 2019; Martin-Key et al., 2022). Together, these forces have not only fuelled the quantitative expansion of literature but also reshaped the thematic and methodological landscape of the field.

4.2 Thematic and Structural Implications

The keyword co-occurrence analysis and core–periphery structure identified in this study reveal several theoretical and practical implications for the field of school refusal interventions.

First, the dominance of school refusal, anxiety, and depression as high-connectivity nodes underscores the centrality of the emotional–behavioural pathway in both conceptual and empirical models. The strong co-occurrence between anxiety and depression suggests that an "anxiety–school refusal–depression" triadic chain remains a key explanatory mechanism, providing a stable theoretical foundation for longitudinal and intervention research. This is further reinforced by citation patterns—several of the most highly cited studies focus on emotional disorders, teacher–student relationships, and CBT-based interventions, confirming that the emotional–behavioural framework continues to anchor the field.

Second, the identification of adolescents as a core node highlights the developmental specificity of school refusal. This finding reinforces the need for age-sensitive frameworks that differentiate between childhood-onset and adolescent-onset cases, which may vary in aetiology, prognosis, and optimal intervention strategies.

Third, the bridging role of intervention across multiple thematic clusters signals an ongoing integration of prevention models, evidence-based treatment, and educational adjustment outcomes. Its cross-cluster connectivity indicates a fertile space for interdisciplinary collaboration, where mental health, education, and social policy can intersect to address school refusal in a coordinated manner.

Fourth, the temporal evolution of keywords shows a shift from historically narrow constructs such as school phobia toward broader, contextually embedded concepts like autism spectrum disorder, bullying, and system-level prevention. For example, Cluster 1 (neurodiversity and bullying) and Cluster 4 (system-level prevention) represent emerging frontiers that combine neurodevelopmental perspectives with ecological prevention strategies, though their current interconnections remain weak.

Lastly, the disciplinary long-tail distribution—where medicine (37.7%) and psychology (35.0%) jointly contribute over 70% of the literature, alongside contributions from social sciences (14.5%), neuroscience, nursing, and even computer science—demonstrates that school refusal is increasingly framed as a multidimensional, cross-sectoral issue. This broad base provides fertile ground for knowledge integration but also calls for stronger conceptual synthesis to avoid thematic fragmentation.

4.3 Geographical and Institutional Concentration

The current evidence base is heavily concentrated in high-income regions, with the United States alone accounting for 34.8% of all publications—more than double that of the United Kingdom (12.1%) and Australia (11.4%). This dominance reflects strong research funding infrastructures, established clinical trial networks, and mature evidence-based policy frameworks. European contributions are bolstered by coordinated regional efforts, particularly in the Netherlands, Spain, and Nordic countries, while Japan represents a key node in the Asia–Pacific network. However, contributions from low- and middle-income countries remain sparse, which limits the global generalisability of current findings.

Institutionally, the field is shaped by a small group of high-output organisations, including Monash and Deakin in Australia, Leiden in the Netherlands, and Yale in the United States, but their dominance may inadvertently concentrate research agendas within specific cultural and policy contexts.

4.4 Research Gaps and Future Directions

Based on the core–periphery structure and temporal evolution, three major research gaps are apparent. First, peripheral nodes such as qualitative and prevention exhibit sparse linkages and low frequencies (≤5), indicating that mixed-methods and preventive intervention studies remain underdeveloped. Second, school adjustment—despite having the highest average citations per occurrence (200.33)—appears only six times, suggesting insufficient longitudinal evidence on post-intervention adaptation. Third, Clusters 1 (neurodiversity) and 4 (system-level prevention) lack strong interconnections, indicating a need for integrated frameworks that incorporate neurodevelopmental diversity into multi-systemic interventions.

To address these gaps, future research should include the following suggestions, which are:

•   Adopt mixed-method designs (e.g., combining RCTs with qualitative follow-up) to capture both outcome efficacy and contextualised mechanisms in neurodiverse populations.

•   Develop school–family–community collaborative models for preventive interventions, supported by machine-learning tools to predict absenteeism risk.

•   Use school adjustment as a long-term outcome measure, with standardised instruments validated across cultural contexts, to strengthen evidence for policy translation.

4.5 Limitations

Several limitations should be acknowledged. First, this study relied solely on the Scopus database, which, while comprehensive, may omit relevant studies indexed in other sources such as Web of Science, PubMed, or ERIC, introducing potential coverage bias. Second, the focus on English-language publications may exclude valuable contributions from non–English-speaking regions, particularly in Asia, Latin America, and Africa. Third, thematic identification was based on author-provided keywords, which can vary in specificity and terminology, potentially influencing cluster assignments. Finally, the exclusion of grey literature—such as policy reports, practice guidelines, and dissertations—means that important practice-based evidence may not be captured. These limitations should be considered when interpreting the findings and designing future bibliometric research.

5 CONCLUSION

This study represents the first bibliometric and science mapping analysis of research on school refusal interventions. By systematically examining 1967–2025 publications indexed in Scopus, the study mapped publication trends, geographic distribution, leading contributors, thematic evolution, and collaboration patterns. The findings show that research output has increased markedly in the past decade, with the United States, Japan, and European countries emerging as central contributors. The co-occurrence and clustering analysis revealed that the intellectual structure of the field is organised around emotional–behavioural mechanisms, system-level interventions, and developmental outcomes, while also showing the rise of newer themes such as neurodiversity and school–family–community collaboration. The collaboration network remains uneven, with limited cross-regional integration, particularly involving low- and middle-income countries. Moreover, the core–periphery structure highlighted that interventions serve as a key bridging hub across thematic clusters, though gaps remain in preventive models, qualitative inquiry, and longitudinal outcome evaluation.

By consolidating and visualising these dynamics, the study contributes to conceptual clarity and provides a reference point for future interdisciplinary collaboration and policy-oriented interventions. It highlights the need for culturally sensitive, system-wide, and evidence-based approaches to school refusal. However, the reliance on a single database and the exclusion of grey literature limited the comprehensiveness of the findings; therefore, for future research, extending coverage to multiple data sources and integrating qualitative insights to capture emerging practices in diverse contexts are necessary to gain deeper insight for this research.

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