



Research Article

Research Trends on Health Education by Indonesia Researcher in Scopus Database: A Bibliometric Analysis (1996-2026)

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Research Trends on Health Education by Indonesia Researcher in Scopus Database: A Bibliometric Analysis (1996-2026)

Abstract. Health education plays a crucial role in improving knowledge, attitudes, and behaviors through educational processes. As attention to health-related issues in Indonesia continues to increase, research on health education has also grown substantially. However, no bibliometric study has comprehensively mapped the development of health education research in Indonesia. This study aimed to analyze publication trends, research focus, and keyword novelty in Indonesian health education research using a bibliometric approach. Data were retrieved from the Scopus database by limiting publications to those authored by researchers affiliated with Indonesian institutions. The article selection process followed the PRISMA guidelines, resulting in 225 eligible articles for analysis. The bibliometric analysis was conducted using the R Program to examine publication trends and VOSviewer to visualize research focus through keyword co-occurrence analysis and identify keyword novelty using overlay visualization. The results showed that publication output increased consistently from 2018 and reached its highest level in 2025. Keyword co-occurrence analysis identified five major research themes representing the diverse scope of health education research in Indonesia. Furthermore, the keywords *children* and *reproductive health* emerged as relatively recent topics, indicating promising directions for future research. These findings provide a comprehensive overview of the development of health education research in Indonesia and offer valuable insights for researchers, educators, and policymakers in establishing future research priorities and advancing evidence-based health education practices.

Keywords: Health Education; Bibliometric Analysis; Publication Trends; Research Focus; Keyword Novelty; Indonesia

Abstrak. Pendidikan kesehatan memiliki peran penting dalam meningkatkan pengetahuan, sikap, dan perilaku masyarakat melalui proses pembelajaran. Seiring meningkatnya perhatian terhadap isu kesehatan di Indonesia, penelitian mengenai pendidikan kesehatan juga mengalami perkembangan yang signifikan. Namun, hingga saat ini belum terdapat kajian bibliometrik yang secara komprehensif memetakan perkembangan penelitian pendidikan kesehatan di Indonesia. Penelitian ini bertujuan untuk menganalisis tren publikasi, fokus penelitian, dan kebaruan kata kunci pada penelitian pendidikan kesehatan di Indonesia menggunakan pendekatan bibliometrik. Data diperoleh dari basis data Scopus dengan membatasi publikasi yang ditulis oleh penulis yang berafiliasi di Indonesia. Proses seleksi artikel dilakukan menggunakan pedoman PRISMA sehingga diperoleh 225 artikel yang memenuhi kriteria inklusi. Analisis dilakukan menggunakan *R Program* untuk mengidentifikasi tren publikasi serta *VOSviewer* untuk memvisualisasikan fokus penelitian melalui analisis *co-occurrence* kata kunci dan mengidentifikasi kebaruan topik melalui *overlay visualization*. Hasil penelitian menunjukkan bahwa publikasi mengalami peningkatan yang konsisten sejak tahun 2018 dan mencapai puncaknya pada tahun 2025. Analisis kata kunci mengidentifikasi lima kelompok tema utama yang mencerminkan beragam fokus penelitian pendidikan kesehatan di Indonesia. Selain itu, kata kunci *children* dan *reproductive health* muncul sebagai topik yang relatif baru dan berpotensi menjadi arah penelitian selanjutnya. Temuan ini memberikan gambaran komprehensif mengenai perkembangan penelitian pendidikan kesehatan di Indonesia serta dapat menjadi acuan bagi peneliti, pendidik, dan pembuat kebijakan dalam menentukan prioritas penelitian di masa mendatang.

Kata Kunci: Pendidikan Kesehatan; Analisis Bibliometrik; Tren Publikasi; Fokus Penelitian; Kebaruan Kata Kunci; Indonesia

INTRODUCTION

Education is widely recognized as a fundamental pillar of human resource development because it equips individuals with the knowledge, skills, values, and competencies needed to contribute effectively to society and national development. Beyond improving individual capabilities, education also promotes social well-being, economic growth, and sustainable development by preparing learners to respond to evolving societal needs (Hakim & Angga, 2023; Tafese & Kopp, 2025). The rapid advancement of technology, globalization, and social transformation has further expanded the expectations placed on educational systems to prepare students for increasingly complex challenges (Kumar, 2025; Ramadhani et al., 2024; Zafrullah et al., 2025). Consequently, modern education should not only emphasize academic achievement but also foster the competencies required for lifelong learning and responsible citizenship (Auh & Kim, 2024). One of the primary institutions responsible for achieving these educational goals is the school.

Schools play a central role in translating educational goals into meaningful learning experiences by supporting students' cognitive, social, emotional, and behavioral development through structured educational activities (Thakur, 2025; Zafrullah, Putra, et al., 2026). The effectiveness of school learning is influenced by high-quality teacher–student interactions, supportive learning environments, and instructional strategies that actively engage students throughout the learning process (Li & Zeng, 2025). In addition to promoting academic achievement, schools are expected to cultivate positive attitudes, healthy lifestyles, and responsible behaviors that contribute to students' overall well-being (Hanafiah et al., 2024). Therefore, schools provide an appropriate setting for integrating learning experiences that extend beyond traditional academic subjects (Zegwaard et al., 2023). One important area of learning implemented in schools is health education.

Health education is an essential component of the educational process because it enables students to develop the knowledge, attitudes, and practical skills required to make informed decisions regarding their health and well-being (Benes & Alperin, 2025; Douwes et al., 2023). Through health education, students learn to access, understand, evaluate, and apply health-related information in ways that encourage healthy behaviors and reduce the risk of preventable diseases (Rudwan et al., 2025). As health challenges continue to evolve alongside social and technological changes, strengthening health education has become increasingly important for preparing students to maintain healthy lifestyles throughout their lives. Consequently, health education should be viewed as an integral element of comprehensive education rather than as a complementary school subject (Khurana et al., 2022). One of the most appropriate environments for delivering health education is the school setting.

In Indonesia, health education has been incorporated into various school initiatives, particularly through the School Health Program (*Usaha Kesehatan*

Sekolah or UKS), which aims to improve students' knowledge, attitudes, and healthy behaviors (Nugrahani & Umaroh, 2025). These initiatives encourage the adoption of healthy lifestyles by integrating health promotion activities into the daily school environment and supporting collaboration among educators, families, and health professionals. Despite these efforts, the implementation of school-based health education continues to face challenges, including limited facilities, insufficient human resources, and variations in institutional support across schools (Adomako Gyasi et al., 2024). These conditions indicate that strengthening health education requires continuous improvements in educational policies, school management, learning resources, and multi-sector collaboration to ensure that health promotion can be implemented effectively and sustainably.

Bibliometric studies have been widely employed to map publication trends, intellectual structures, thematic evolution, and future research directions across various health-related fields (Zafrullah, Ma'arif, et al., 2026). Borromeo et al. (2026) examined the development of digital health research, Özdemir (2026) investigated the evolution of mental health nursing literature, while Izumi et al. (2026) analyzed the most influential publications on team-based learning in health professions education. These studies demonstrate that bibliometric analysis provides comprehensive insights into the growth, research themes, and emerging directions of specific scientific domains. However, to date, no bibliometric study has specifically examined the development of health education research in Indonesia, particularly in terms of publication trends, research focus, and keyword novelty to identify future research opportunities.

By using the Scopus database and limiting the analysis to publications authored by Indonesian researchers, this study provides a comprehensive overview of the development of health education research in Indonesia. The findings are expected to serve as a valuable reference for researchers, educators, and policymakers in understanding existing research trends, identifying emerging topics, and recognizing potential research gaps. Furthermore, this study offers evidence-based insights that can support future research planning and strengthen the advancement of health education research in Indonesia.

METHOD

This study analyzes the development of research on health education in Indonesia using a bibliometric approach. Bibliometric analysis is a quantitative method that systematically evaluates scientific publications to identify publication trends, research productivity, thematic structures, collaboration patterns, and emerging research topics within a particular field (Artyukhov et al., 2022; Dewi et al., 2021; Ramadhani & Retnawati, 2024; Retnawati & Hidayat, 2025; Singh et al., 2021; Zafrullah et al., 2024; Zafrullah & Ramadhani, 2024). Before conducting the bibliometric analysis, the document selection process was carried out following the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) guidelines to ensure a transparent, systematic, and reproducible identification, screening, eligibility, and inclusion process.

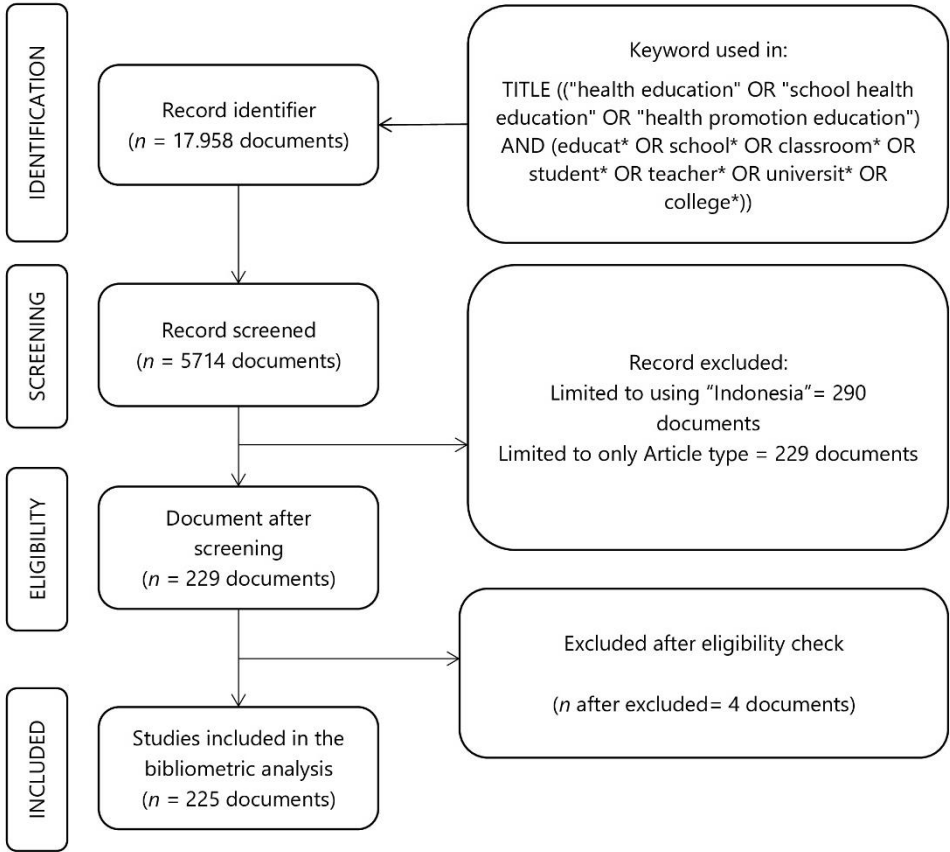


Figure 1. PRISMA Flow for Bibliometric Analysis

Figure 1 shows the PRISMA flow diagram illustrating the document selection process used in this bibliometric study. The initial search in the Scopus database retrieved 17,958 documents using keywords related to health education within educational contexts. The screening process was subsequently limited to publications associated with Indonesia, reducing the dataset to 5,714 documents to ensure that the analysis specifically reflected the Indonesian research landscape. A further eligibility criterion was applied by restricting the document type to articles, resulting in 229 eligible publications, as journal articles generally provide complete and peer-reviewed scientific evidence suitable for bibliometric analysis. During the eligibility assessment, four documents were excluded because they did not meet the predetermined inclusion criteria after manual examination, leaving 225 articles for the final analysis.

The bibliometric analysis was conducted using the R Program and VOSviewer, each serving complementary analytical purposes. The R Program was used to analyze publication trends over time, while VOSviewer was employed to visualize research focus through keyword co-occurrence networks and to identify keyword novelty using overlay visualization.

RESULTS

Publication Trends

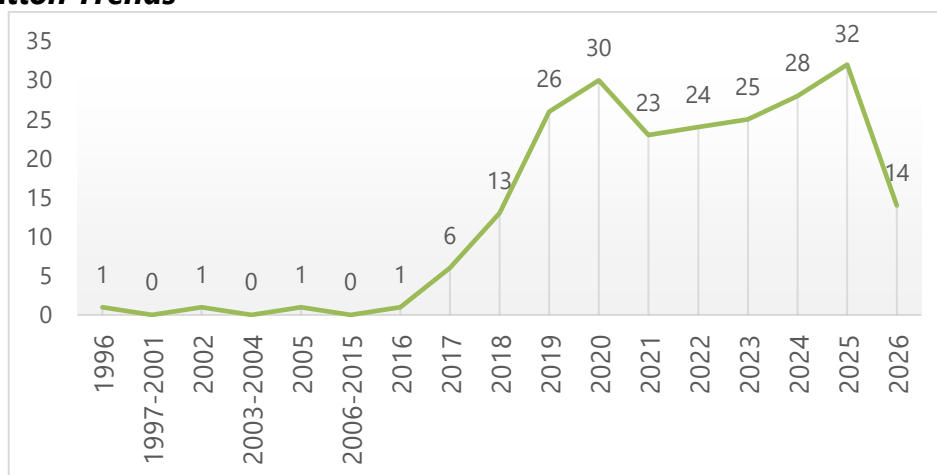


Figure 2. Publication Trends From 1996-2026 about Health Education by Indonesia Researcher

Publications on health education in Indonesia from Figure 2 exhibited relatively limited growth during the early stages of the study period. The annual publication trend shows that only one article was published in 1996, 2002, 2005, and 2016, while no publications were recorded during the periods 1997–2001, 2003–2004, and 2006–2015. These prolonged gaps indicate that research on health education received limited scholarly attention for nearly two decades. The low publication output during this period suggests that health education had not yet emerged as a prominent research topic within the Indonesian academic community.

Publication output continued to rise in 2024, reaching 28 articles, and peaked in 2025 with a total of 32 publications, representing the highest annual output throughout the study period. This achievement demonstrates that health education has become an increasingly important area of research among Indonesian scholars. As of 2026, 14 publications have already been indexed, indicating that research activity remains ongoing even though the publication year has not yet concluded. Overall, the publication trend illustrates a sustained expansion of health education research in Indonesia, characterized by increasingly consistent scholarly productivity over recent years.

Focus Co-Occurrence

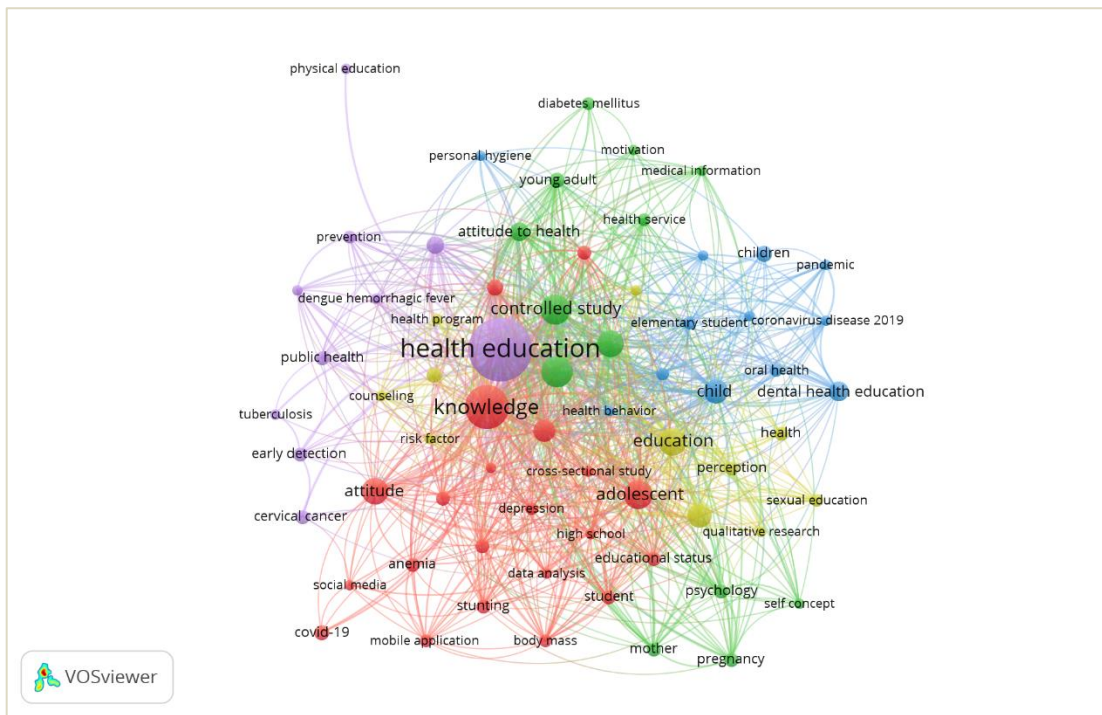


Figure 3. Focus Research on Health Education by Indonesia Researcher

After analyzing with VOSviewer, the author obtained 67 keywords divided into 5 clusters which can be seen in Table 1.

Table 1. Keywords Grouping

Color	Items	Keywords	Cluster Name
Red	21	Adolescent, Anemia, Attitude, Body Mass, Clinical Article, COVID-19, Cross-Sectional Study, Data Analysis, Depression, Educational Status, Health Care Personnel, Health Promotion, High School, Knowledge, Mental Health, Middle Aged, Mobile Application, Quasi Experimental Study, Social Media, Student, Stunting	Adolescent Wellness Development
Green	13	Adult, Attitude to Health, Controlled Study, Diabetes Mellitus, Health Service, Medical Information, Mother, Motivation, Pregnancy, Psychology, Questionnaire, Self Concept, Young Adult	Community Care Engagement
Blue	12	Age, Child, Children, Clinical Effectiveness, Coronavirus Disease 2019, Dental Health Education, Elementary Student, Health Behavior, Oral Health, Pandemic, Personal Hygiene, School Child	Child Wellbeing Promotion
Yellow	11	Counseling, Curriculum, Education, Health, Health Program, Hypertension, Perception, Qualitative Research, Reproductive Health, Risk Factor, Sexual Education	Preventive Learning Strategies
Purple	10	Behavior, Cervical Cancer, Dengue Hemorrhagic Fever, Early Detection, Health Education, Physical Education, Prevention, Public Health, Sampling, Tuberculosis	Disease Prevention Awareness

Among the identified themes, "Adolescent Wellness Development" represents research primarily focused on improving adolescents' well-being through educational and promotional approaches. Studies within this theme emphasize the development of knowledge, positive attitudes, and healthy behaviors that contribute to students' overall quality of life. The research also addresses various physical and psychological challenges experienced by adolescents as part of broader efforts to support their holistic development. In addition, increasing attention has been given to the integration of digital technologies as effective tools for educational delivery and information dissemination. Overall, this theme reflects a growing research emphasis on empowering adolescents through innovative educational interventions and preventive initiatives.

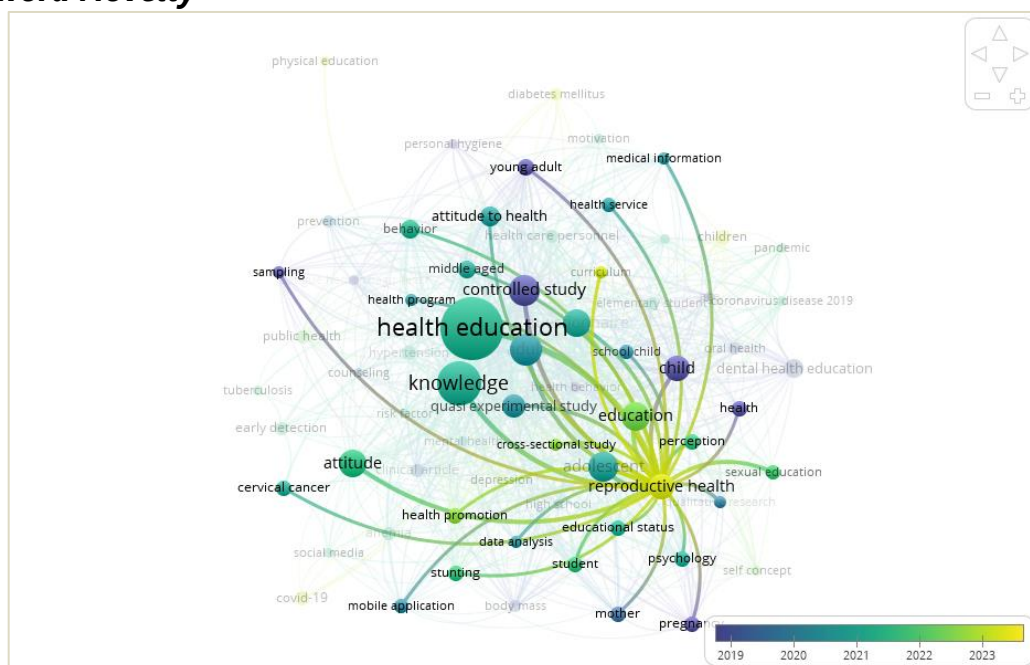
Another prominent theme, "Community Care Engagement " highlights research concerning community participation in supporting educational initiatives across diverse population groups. Studies in this theme examine how individual characteristics, motivation, and psychosocial factors influence participation in educational programs and the utilization of available services. Particular attention is given to adults and families as important target groups in promoting sustainable educational outcomes. The findings further suggest that the success of educational initiatives depends not only on service providers but also on active community involvement. Consequently, this theme emphasizes the importance of collaborative participation in strengthening educational interventions and improving public well-being.

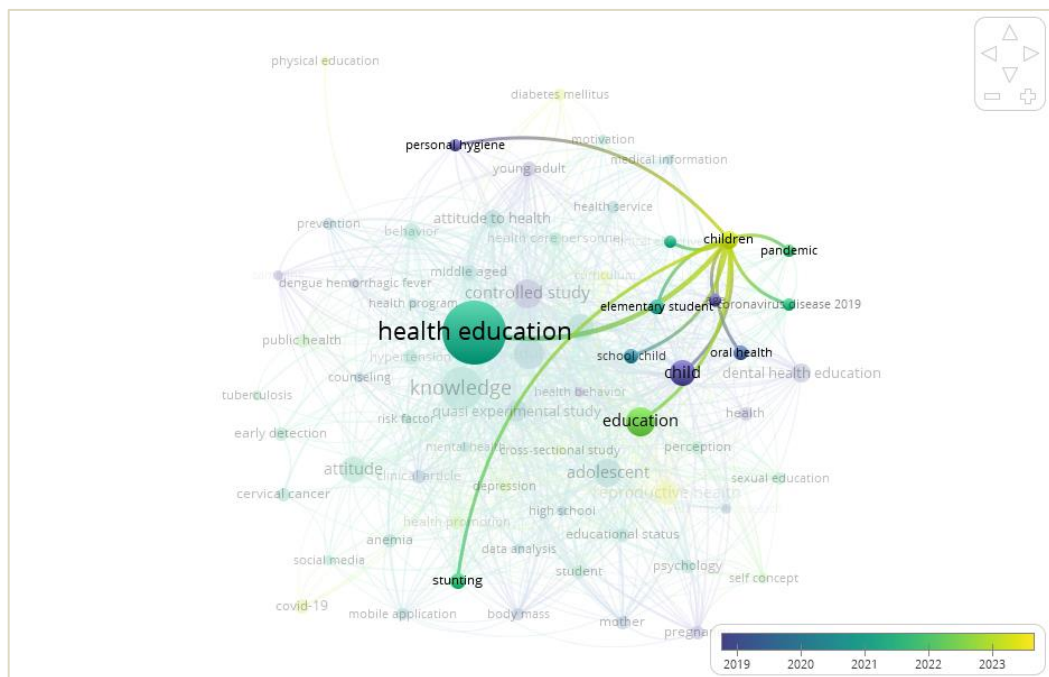
In contrast, the "Child Wellbeing Promotion" theme centers on research aimed at enhancing children's well-being through educational environments. The studies primarily focus on fostering positive behaviors during childhood as a foundation for lifelong well-being and personal development. Research within this theme also evaluates various educational initiatives designed to support children's development through preventive and promotive approaches. Furthermore, changing global circumstances have encouraged the exploration of adaptive educational strategies that continue to support children's well-being under different conditions. Collectively, this theme demonstrates the significant role of educational settings in cultivating positive habits and supporting healthy child development.

A different perspective is presented by the "Preventive Learning Strategies" theme, which explores educational strategies designed to strengthen preventive practices. Studies in this theme investigate curriculum development, educational program implementation, and instructional approaches that enhance learners' understanding of preventive concepts. The findings indicate that educational processes play an essential role in increasing awareness and encouraging responsible decision-making. Researchers also evaluate the effectiveness of various learning strategies in promoting long-term behavioral change. Taken together, this theme highlights the contribution of educational innovation to the development of preventive knowledge and practices.

Finally, the "Disease Prevention Awareness" theme focuses on research that promotes preventive actions through educational initiatives. Studies within this theme emphasize increasing public awareness, encouraging early action, and fostering behavioral changes that reduce various health-related risks. Educational programs are widely recognized as effective mechanisms for improving public understanding and supporting informed decision-making. The research further demonstrates that preventive education contributes to the development of more responsible individual and community behaviors. Overall, this theme reflects the growing importance of educational approaches in strengthening prevention-oriented research and practice.

Keyword Novelty





The overlay visualization indicates that yellow-colored keywords represent topics that have emerged more recently than other keywords within the research landscape. In this study, "reproductive health" appears as one of these emerging topics, suggesting that it has gained increasing attention in health education research in Indonesia. This finding reflects a shift in research focus toward more specific and contextually relevant issues in response to evolving societal needs. Within the context of health education, "reproductive health" plays an important role in enhancing knowledge, shaping positive attitudes, and fostering responsible behaviors through educational interventions. Therefore, this topic offers substantial opportunities for future research and has the potential to become one of the leading directions in health education studies.

Overall, the overlay visualization demonstrates that the direction of health education research in Indonesia continues to evolve in response to emerging societal needs and priorities. The appearance of "reproductive health" and "children" as relatively new keywords indicates promising research opportunities that remain open for further exploration. These findings suggest that future studies can not only broaden the scope of health education research but also deepen the understanding of how educational approaches contribute to improving individual and community well-being. Accordingly, both topics may serve as valuable recommendations for future researchers seeking to produce relevant and impactful contributions to the field of health education.

PEMBAHASAN

The findings of this bibliometric analysis demonstrate that health education research in Indonesia has experienced substantial growth over recent years. Although publication output remained limited during the early years and several periods recorded no publications, research productivity began to increase consistently from 2018 onward and reached its highest level in 2025. This upward trend indicates that health education has become an increasingly important research field, reflecting growing academic interest in addressing educational and public well-being challenges. The continuous increase in publication output also suggests that researchers have become more responsive to emerging societal needs and the evolving role of health education within educational settings.

The co-occurrence analysis further reveals that health education research in Indonesia encompasses a broad range of interconnected themes. These themes extend beyond educational interventions targeting students and children to include community engagement, preventive learning strategies, and awareness-oriented educational approaches. Such thematic diversity indicates that health education is no longer viewed merely as the dissemination of information but as a comprehensive educational process involving behavioral development, environmental support, and multi-stakeholder collaboration. Consequently, the identified research themes illustrate the increasing complexity and multidisciplinary nature of health education research in Indonesia.

The overlay visualization demonstrates that the research landscape is gradually shifting toward relatively recent topics, particularly "reproductive health" and "children." The emergence of these keywords suggests that researchers are increasingly focusing on target groups requiring more specific, age-appropriate, and sustainable educational approaches. This shift reflects the adaptation of health education research to contemporary educational priorities and evolving societal challenges. Accordingly, these emerging topics offer considerable opportunities for future studies, particularly those evaluating the effectiveness of educational models, instructional strategies, intervention programs, and technology-supported learning in improving educational outcomes.

The findings of this study have important implications for researchers, educators, policymakers, and healthcare practitioners involved in the development of health education in Indonesia. The identified research trends provide valuable evidence for understanding established themes while highlighting emerging topics that warrant greater scholarly attention. Future research is recommended to expand investigations into "reproductive health" and "children" by adopting more rigorous research designs, evaluating educational interventions, and exploring innovative learning approaches supported by digital technologies. Such efforts are expected not only to strengthen the scientific development of health education research but also to provide meaningful evidence for educational policy and practice aimed at improving individual and community well-being.

CONCLUSION

The results of the analysis indicate that health education research in Indonesia has experienced substantial growth over time, particularly since 2018, with publication output reaching its highest level in 2025. The bibliometric findings reveal that the research landscape is characterized by diverse thematic areas, encompassing adolescent development, community engagement, child well-being, preventive learning strategies, and disease prevention awareness, reflecting the multidisciplinary nature of health education research. Furthermore, the overlay visualization identifies "reproductive health" and "children" as emerging research topics, suggesting a shift toward more specific educational priorities and target populations. These findings demonstrate that health education research in Indonesia continues to evolve in response to changing societal needs while providing valuable insights into established and emerging research directions. Therefore, this study contributes to a comprehensive understanding of the development of health education research and offers a useful reference for researchers, educators, and policymakers in determining future research priorities and strengthening evidence-based educational practices in Indonesia.

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