Trends in Guidance and Counseling Technology Research: A Bibliometric Analysis of Publications in the Scopus Database

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Abstract
The development of technology affects guidance and counseling services. Various technologies are used to facilitate access to practical guidance and counseling services. The primary purpose of this article is to determine research trends on the topic of technology in guidance and counseling. The method used in this study is Bibliometric Analysis with the help of R Studio Biblioshiny software. Bibliometric analysis is carried out in three steps: 1) determining the objectives and research questions; 2) developing research design; and 3) analyzing results and interpretations. This Bibliometric analysis uses the Scopus database. The research findings show: 1) Performance analysis shows that the development of technology research in guidance and counseling during 1959-2025 has increased in terms of quantity with an Annual Growth Rate of 7.06% and Productivity per active year of publication of 30.03; 2) Kraut et al.'s publication in 1998 regarding the Internet paradox became the most influential publication. Then, the Journal of Substance Abuse Treatment became the most impactful journal on the topic of guidance and counseling technology; 3) The United States became the most productive country publishing articles related to technology in guidance and counseling. Naslud Ja is the most active author collaborating with other authors; 4) Over the past five years, the most widely studied topics are therapy, exercise, machine learning, artificial intelligence, and drug therapy. Overall, it can be concluded that there is an increase in the number of publications, research trends, and interest in guidance and counseling technology research.

1. Introduction

Rapid technological developments affect all aspects of life, including education (Sinaga & Firmansyah, 2024). Technology has affected the learning environment and student learning outcomes (Ravshanovna & Abdi-Xafizovna, 2025). Guidance and counseling, as an integral part of education, are also inseparable from the influence of technological developments. Technological developments have affected the implementation of guidance and counseling (Hapipi et al., 2024; Muhammad, 2024). COVID-19 is one of the variables accelerating technology adaptation in mental health services (including the counseling profession) (Permatasari et al., 2021). Technology facilitates mental health services by providing faster and cheaper access (Price et al., 2014).

The development of technology in the fields of guidance and counseling can be divided into two periods. The first period is the offline technology, which can only be accessed via personal computers. Technology in this early period can be exemplified by the presence of ELIZA (Weizenbaum, 1966). ELIZA is the first chatbot program to provide mental health services. The second period is the technology that can be accessed online or via the internet. This second period is marked by the emergence of The Palace, a chat forum that allows for group support (Delmonico et al., 2000). The internet has changed counseling services to be website-based (Setiawan & Nabyla, 2022), cyber counseling (Radiani & Fadilah, 2024), and metaverse (Kang et al., 2025). In addition, the presence of Artificial Intelligence (AI) also gives a new color to guidance and counseling. Such as using AI in counselor training (Jeong et al., 2025). On the other hand, the American Counseling Association (ACA) recommends empirical research on AI and its potential use in the counseling profession (ACA, 2024).

Guidance and counseling services have been integrated with technology that allows counselors and clients to meet through virtual space (Baker & Ray, 2011). Technological innovation is not only in the aspect of client services but also in the management aspect, changes have occurred (Gustini et al., 2022). Counselor work becomes more concise and faster if technology is utilized. For example, the use of web-based student needs assessments can shorten the time in the process of data collection and analysis (Ashari et al., 2023). The development of guidance and counseling programs can also be done quickly if the application is utilized (Sudibyo, 2017).

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The development of technology in guidance and counseling is growing rapidly. Guidance and counseling services initially had many limitations in reaching and helping clients, but this was overcome due to the development of technology. In line with this technological development, research mapping related to this research is needed. This kind of mapping can help counselors and academics in this field to find out how the development of technology in guidance and counseling has evolved from the beginning until now. Therefore, this study aims to conduct a bibliometric analysis of research results that discuss technology in guidance and counseling. By focusing on the following Research Questions (RQ):

RQ1: What is Scopus's level of publication productivity in technology research in guidance and counseling?

RQ2: Which publications and journals most influence technology research in guidance and counseling?

RQ3: Which countries and researchers most frequently collaborate on studies indexed in Scopus?

RQ4: What are the trends in technology research in guidance and counseling?

2. Method

This study uses a quantitative approach with bibliometric analysis. There are two main techniques in bibliometric analysis, namely, performance analysis and science mapping (Donthu et al., 2021). Performance analysis focuses on the contribution of publications and citations and their correlation in guidance and counseling technology research (Donthu et al., 2020). Science mapping discusses interactions and structural connections among guidance and counseling technology research (K. Baker et al., 2020).

2.1. Source of Data & Keyword Selection

The data in this study were obtained from the Scopus database. The decision to use the Scopus database was based on its proven quality and richness. Scopus is one of the most curated abstract and citation databases, covering a variety of scientific journals, conference proceedings, and books both globally and regionally (Baas et al., 2020). Scopus only contains the highest quality data because the content is strictly selected and re-evaluated by an impartial Advisory and Content Selection Board. Scopus is also a database that has a significant impact on the world of research (Powell & Peterson, 2017).

The search focuses on title, abstract, and keywords, with the inclusion criteria of the subject area in psychology. The types of documents included are articles, reviews, book chapters, books, conference papers, and conference reviews. There are two exclusion criteria, namely document duplication and incomplete meta data. The year of publication is not limited in this search. Data search uses Boolean operators with keywords:

> TITLE-ABS-KEY (("technology" OR "digital tools" OR "online counseling" OR "e-counseling" OR "teletherapy" OR "virtual counseling" OR "AI in counseling" OR "AI in mental health" OR "technology in guidance counseling") AND ("guidance counseling" OR "counseling" OR "mental health counseling" OR "mental health" OR "school counseling" OR "school counselor") AND ("effectiveness" OR "impact" OR "benefits" OR "challenges" OR "application" OR "evaluation")) AND (LIMIT-TO (SUBJAREA, "PSYC")) AND (LIMIT-TO (DOCTYPE, "ar") OR LIMIT-TO (DOCTYPE, "cp") OR LIMIT-TO (DOCTYPE, "re") OR LIMIT-TO (DOCTYPE, "ch") OR LIMIT-TO (DOCTYPE, "cr") OR LIMIT-TO (DOCTYPE, "bk"))

The keywords included three parts of the search: first, keywords related to technology with some synonyms, such as digital tools, AI in counseling, and virtual counseling. Second, keywords related to guidance and counseling and synonyms, such as counseling, mental health, and school counselors, were used. Third, keywords related to results or evaluations, such as effectiveness and impact. The search with these keywords found 2041 documents.

2.2. Procedure and Sample

This bibliometric analysis covers research from 1959 to 2025. A data search was conducted on April 6, 2025. The total sample analyzed was in 2012. There were 29 documents that were eliminated because they did not have complete metadata. The list of selected publications was exported from the Scopus BibTeX database format. This research procedure follows the Zaščirinska (2024) bibliometric analysis procedure, which divides it into three stages. The first stage is to determine the objectives and research questions. The second is to formulate data collection and analysis procedures (use of methods and software). The third is the analysis of the results using descriptive statistics and interpretation of findings. The details of the bibliometric analysis procedure in this study can be seen in Figure 1.

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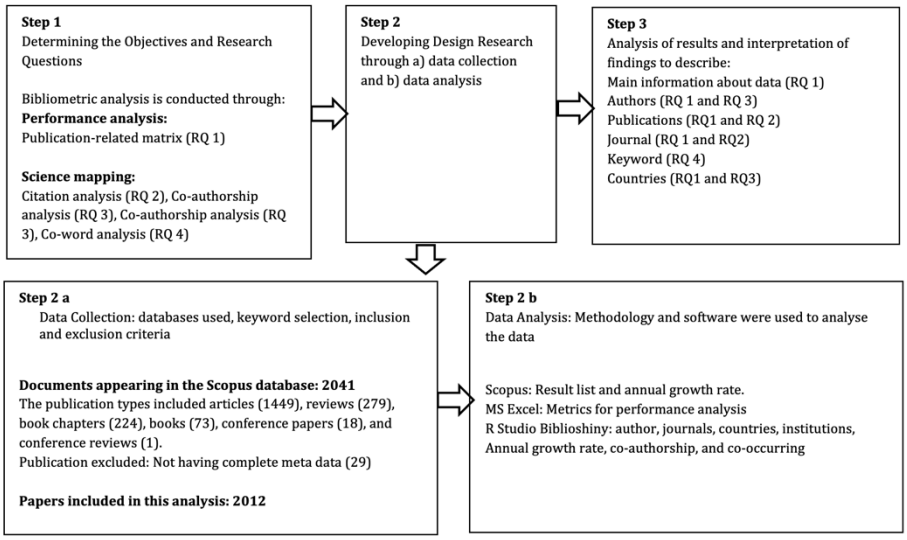

Figure 1. Bibliometric Analysis Procedure

3. Results and Discussion

3.1. Level of Publication Productivity in Technology Research in Guidance and Counseling in Scopus

Publication productivity can be seen with performance analysis consisting of the number of publications, citations, and citations and publication-related matrices (Donthu et al., 2021). Citations change every day, so there will be differences between the results of this study and the results of other studies. To answer RQ 1, R Studio Biblioshiny, MS Excel software, and the Scopus database overview have been used. Performance data such as total publications, h Index, and citation overview were obtained from the Scopus database. The number of contributor authors, single-authored publications, co-authored publications, number of active years of publication, productivity per active year of publication, total citations, and average citation were obtained from the results of bibliometric analysis with R studio Biblioshiny. Productivity per active year of publication, average citations, collaboration coefficient, proposition of cited publications, and citation per cited publication were calculated using MS Excel. The results of the analysis through R Studio Biblioshiny, Scopus data, and MS Excel are then presented in Table 1.

Table 1. Performance Analysis of Guidance and Counseling Technology Research in Scopus

Description	Abbreviations and Formulas	Results
1.1 Publication-related metrics		
Total publication	TP	2012
Article		1426
Review		276
Book chapter		219
Book		72
Conference paper		18
Conference review		1
Number of contributing authors	NCA	7197
Single-authored publications	SA	279
Co-authored publication per Doc	CA	4.09
Timespan	T	1959:2025
Annual Growth Rate (%)	AGR	7.06%
Number of active years of publication	NAY	67
Productivity per active year of publication	PAY=TP/NAY	30.03
1.2 Citation-related metrics		
Total citations	TC	51259
Average citations	AC=TC/TP	25.48
1.3 Citation and publication-related metrics		
Number of cited publications	NCP	1,629
Collaboration coefficient	CC=1-(TP/NCA)	0.72
Proportion of cited publications	PCP=NCP/TP	0.81
Citations per cited publication	CCP=TC/NCP	31.47
h-index	H	102

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Performance analysis shows that the development of technology research in guidance and counseling has increased in quantity over the past 67 years (from 1959 to 2025) with an Annual Growth Rate of 7.06% and Productivity per active year of publication of 30.03. The average citation of each document is 25.48. The H index on this topic also shows a considerable number, 102.

This means that technology research in guidance and counseling has significant productivity and impact. One indicator of productivity and impact of a publication can be seen from the H index because the h-index calculates the number of documents and the number of citations. This idea is reinforced by the opinion of Bar-Ilan (2008), who said that the h-index can be one indicator of a productive Scopus publication and has an impact on the development of science in a particular discipline. Academics have accepted the h-index as an indicator of the success of topics and researchers (Norris & Oppenheim, 2010). According to Norris and Oppenheim (2010), if the h-index increases every year, the researcher and the topic being studied can have a more significant impact. According to Hirsch (2007), the h-index can also be used to predict the future success of a researcher and a topic. When compared to other bibliometric indicators (Hirsch, 2007).

Performance analysis can also be seen from the development of the number of publications each year and the productivity of authors and institutions. The development of publications from 1959 to 2025 can be seen in Figure 2 below:

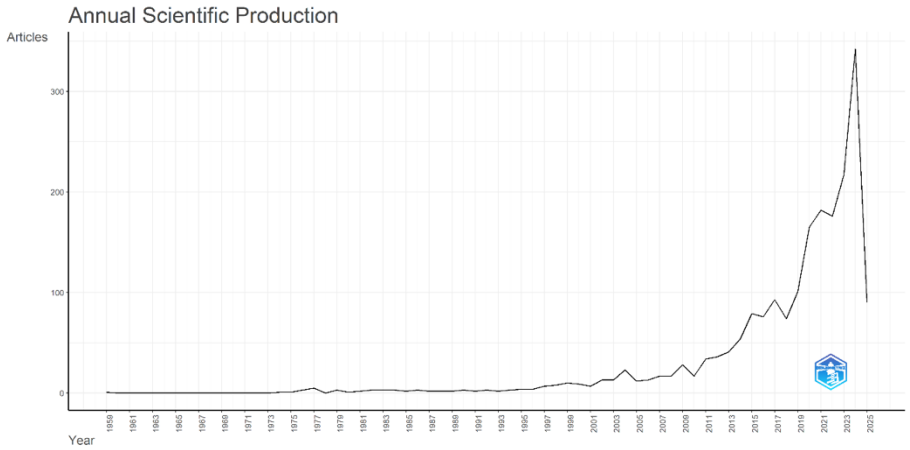

Figure 2. Development of the Number of Publications Each Year

The number of publications on the topic of technology in guidance and counseling has increased from year to year. However, from 1959 to 1998, there was a stagnant number of publications on this topic, with only 1 to 8 publications per year. It was only in 1999 that the publications began to increase. The peak in 2024 was around 342 publications. Overall, the trend of research on guidance and counseling technology has increased from year to year. The increase in the trend of research on guidance and counseling technology cannot be separated from the development of technology in general. Especially in the world of education, many technologies are created and used in the world of education (Xue et al., 2024). In the field of mental health, the use of technology is also increasing (Scott et al., 2017).

Author productivity can also be determined through bibliometric analysis. The results of the study using R Studio Biblioshiny and descriptive statistical analysis show that there are 10 most productive authors.

Table 2. 10 Most Productive Writers

Author	Affiliation	TP	TC	Publication Year Start
Schueller SM	University of California (USA)	13	1568	2013
Hilty DM	Northern California Veterans Administration Health Care System (USA)	11	203	2016
Riva G	Università Cattolica del Sacro Cuore (Italy)	10	428	2000
Torous J	Harvard Medical School This link is disabled (USA)	10	141	2014
Comer JS	University of Texas at Austin (USA)	9	481	2014
Naslund JA	Harvard Medical School, Boston, (USA)	9	203	2015
Jones DJ	College of Arts & Sciences, this link is disabled. It is Chapel Hill, (USA)	8	208	2013
Mohr DC	Northwestern University (USA)	7	1478	2013
Patel V	Harvard Medical School, Boston, (USA)	7	568	2017
Bauer S	University Hospital Heidelberg, Heidelberg, (Germany)	6	184	2005

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Based on the Biblioshiny analysis, the 10 most productive authors in the 67 years of development of technology research in guidance and counseling are known. Schueller is the most active author writing on this topic. Schueller has published 13 publications with a total of 1568 citations. Schueller is a professor in the field of Psychological Science & Informatics at the University of California (USA). Then there is Mohr from Northwestern University (USA), who has 7 publications with 1478 citations. The number of publications produced by authors in the field of technology in guidance and counseling illustrates the author's activeness in writing. So, productive authors have a good reputation in this field of science (Birnholtz, 2006).

Bibliometric analysis can also reveal institutional activity. The bibliometric and descriptive statistical analyses show the five most used institutions or affiliations (Table 3).

Table 3. Institutions with the Most Publications

No	Institutions	Number of Publications
1	University of California (USA)	472
2	University of Toronto (Canada)	297
3	Harvard Medical School (USA)	290
4	University of Washington (USA)	288
5	Northwestern University (USA)	225

Based on Table 3, the University of California is the institution with the most publications on the topic of technology in guidance and counseling. The total publications from the University of California reached 472 publications over 67 years (1959-2025). The number of publications by the University of California in this field is enormous when compared to other institutions. Even with the second place, the University of Toronto has a difference of almost a hundred publications. The high number of publications in an institution indicates the quality intentions of an institution. According to Dvorak (1989), the number of publications is an indicator of the success of a university.

3.2. The Most Influential Publications and Journals in Guidance and Counseling Technology Research

The influence of a publication reflects the impact and success of the publication. The number of citations in a publication is an indicator that the publication affects the development of the research topic. Through bibliometric analysis with the help of Biblioshiny, the 10 most influential publications on the topic of technology in guidance and counseling are known. The 10 publications can be seen in the table 4. Data from table 4 is taken from the citation matrix in Scopus on April 6, 2025, and TC (Total citations).

Table 4. The most Influential Publications

No	Publications Title	DOI	TC	TC per Year
1	Internet paradox: A social technology that reduces social involvement and psychological well-being? (Kraut et al., 1998)	10.1037/0003-066X.53.9.1017	3138	112.07
2	Virtual reality in the assessment, understanding, and treatment of mental health disorders (Freeman et al., 2017)	10.1017/S003329171700040X	879	97.67
3	The association between adolescent well-being and digital technology use (Orben & Przybylski, 2019)	10.1038/s41562-018-0506-1	774	110.57
4	Online communication, social media and adolescent wellbeing: A systematic narrative review (Best et al., 2014; Luxton et al., 2011)	10.1016/j.childyouth.2014.03.001	685	57.08
5	mHealth for mental health: Integrating smartphone technology in behavioral healthcare (Luxton et al., 2011)	10.1037/a0024485	675	45.00
6	The relationship between cell phone use, academic performance, anxiety, and Satisfaction with Life in college students (Lepp et al., 2014)	10.1016/j.chb.2013.10.049	649	54.08
7	Non-social features of smartphone use are most related to depression, anxiety, and problematic smartphone use (Elhai et al., 2017)	10.1016/j.chb.2016.05.079	610	61.00
8	Machine learning in mental health: a scoping review of methods and applications (Shatte et al., 2019)	10.1017/S0033291719000151	557	79.57
9	Traumatic stress in the age of COVID-19: A call to close critical gaps and adapt to new realities (Horesh & Brown, 2020)	10.1037/TRA0000592	547	91.17

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No	Publications Title	DOI	TC	TC per Year
10	Personal Sensing: Understanding Mental Health Using Ubiquitous Sensors and Machine Learning (Mohr et al., 2017)	10.1146/annurev-clinpsy-032816-044949	528	58.67

The most influential publication was written by Kraut et al. (1998). This work discusses the impact of the internet on social engagement and psychological well-being. Kraut et al. (1998) found that the internet causes a decrease in communication between family members and the social environment. In addition, the internet also increases depression and loneliness. The work of Kraut et al. (1998) in guidance and counseling technology is the most cited until 2025, with 3138 citations (Scopus database). On Google Scholar, this work has been cited 8881 times. For example, this work is cited by Hartanto et al. (2025), Mestre-Bach (2025), and Valla et al. (2025).

The following are 10 influential journals on the topic of guidance and counseling technology based on bibliometric analysis using Biblioshiny:

Table 5. The most Influential Journals

No	Journal	h-Index	TC	Year Start
1	Journal of Substance Abuse Treatment	22	1383	2002
2	Frontiers in Psychology	16	990	2017
3	Professional Psychology: Research and Practice	16	1675	1983
4	Psychological Services	13	925	2009
5	American Psychologist	11	3883	1983
6	Clinical Psychology Review	11	1181	2011
7	Cognitive and Behavioral Practice	11	570	2003
8	Counselling and Psychotherapy Research	11	603	2001
9	Cyberpsychology, Behavior, and Social Networking	11	644	2013
10	Journal of Technology in Behavioral Science	11	397	2017

Note: This data is taken from the citation matrix in Scopus on April 6, 2025.

The Journal of Substance Abuse Treatment is the most impactful journal in the topic of guidance and counseling technology, with an h-index of 22 and a total of 1383 citations. The Journal of Substance Abuse Treatment is an open-access journal. This journal has another name, the Journal of Substance Use and Addiction Treatment (JSAT). JSAT is included in the Scopus Q1 journal with a 2023 SJR value of 1.52. According to Scimago Journal Rang (SJR), it is a ranking of scientific journals based on a citation weighting scheme and eigenvector centrality (González-Pereira et al., 2010). SJR is designed for use with complex and heterogeneous citation networks such as Scopus (González-Pereira et al., 2010).

3.3. Which Countries and Researchers Most Frequently Collaborate in Technology Research in Guidance and Counseling in Scopus

This section will discuss the affiliated countries that publish the most publications and collaborate. In addition, section three will also discuss authors who often collaborate with others. When viewed from the number of publications affiliated with a particular country, bibliometric analysis found 10 countries that published the most publications on the topic of guidance and counseling technology (Figure 3).

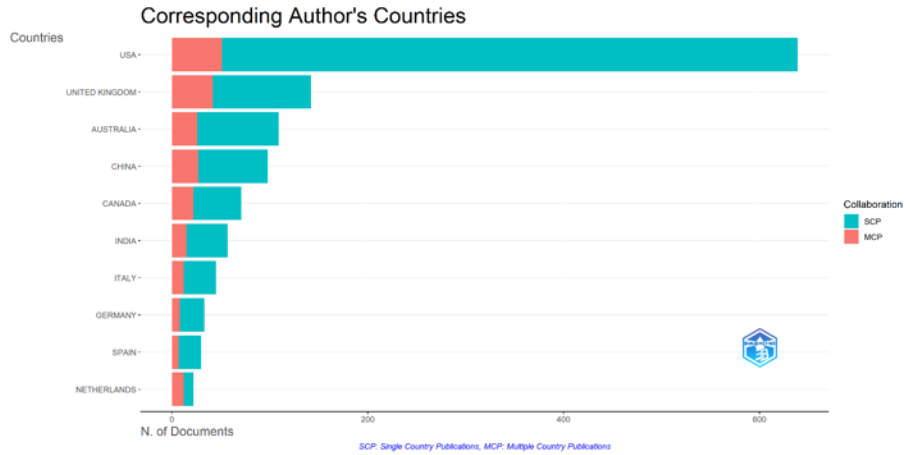

Figure 3. Number of Publications in Countries

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United States America is the most productive country in publishing articles related to technology in guidance and counseling. In the USA publication, there are 51 written through Single Country Publication (SCP), and there are 588 documents written through Multiple Country Publication (MCP). SCP means an article is written with an affiliation to one country, while MCP is written by authors from multiple countries. This means that writers from the USA collaborate a lot with writers from other countries. The high level of collaboration between countries can be seen in Figure 4.

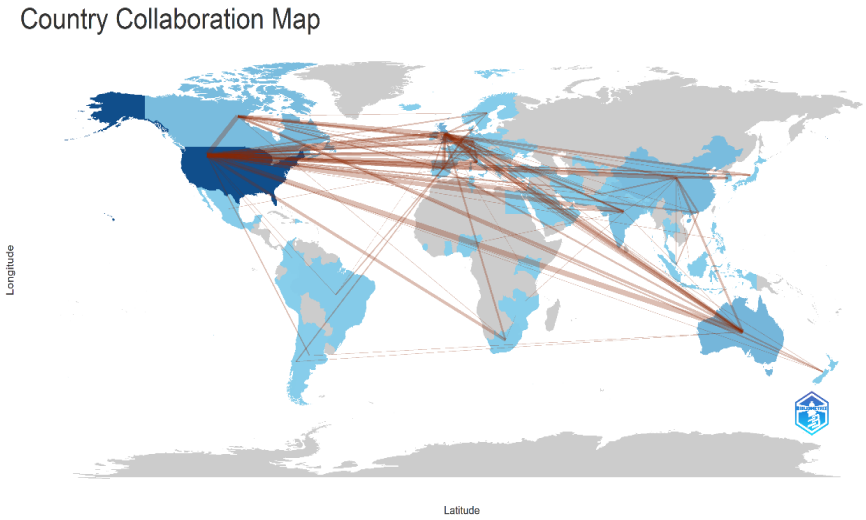

Figure 4. Country Collaboration Map

The map in Figure 4 shows the number of collaboration networks between authors across countries. The United States of America has the most collaboration networks, which is in accordance with Figure 3. The second country with the most collaboration is the United Kingdom. Figure 4 shows the number of collaboration networks on the UK map.

Collaboration between authors can be seen through the Network Collaboration in Figure 5.

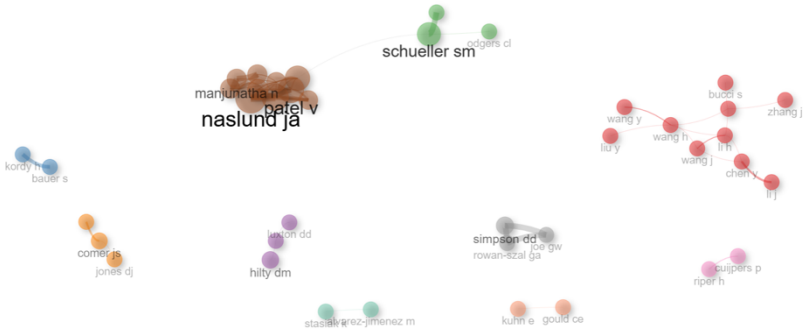

Figure 5. Authors Collaboration

Naslud Ja is the most active author in collaborating with other authors. Naslud's Page Rank in collaboration is 0.034. PageRank is used to analyze the relationship and influence between documents, authors, or institutions in a research field. The PageRank value means that the relationship between the author and other authors is quite good in terms of collaboration.

The analysis of collaboration between Affiliated Countries and between authors shows a good collaboration network. When viewed from the country affiliation, the collaboration that occurs is very uniform. Author collaboration is also quite a lot. From these two findings, in terms of social structure, there is good interaction between each author on the topic of guidance and counseling technology, in line with Aria and Cuccurullo (2017), who stated that the relationship between authors can be seen from the collaboration network. Collaboration analysis helps to understand social ties in a field (Upadhyay et al., 2023).

3.4. Technology Research Trends in Guidance and Counseling

Research trend analysis is the main result of bibliometric analysis findings (Nguyen et al., 2021). Information on research trends can help predict the growth and decline of specific methods, ideas, and topics.

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The results of this research trend analysis can be used to determine future research on guidance and counseling technology. The research trends on technology in guidance and counseling are as follows:

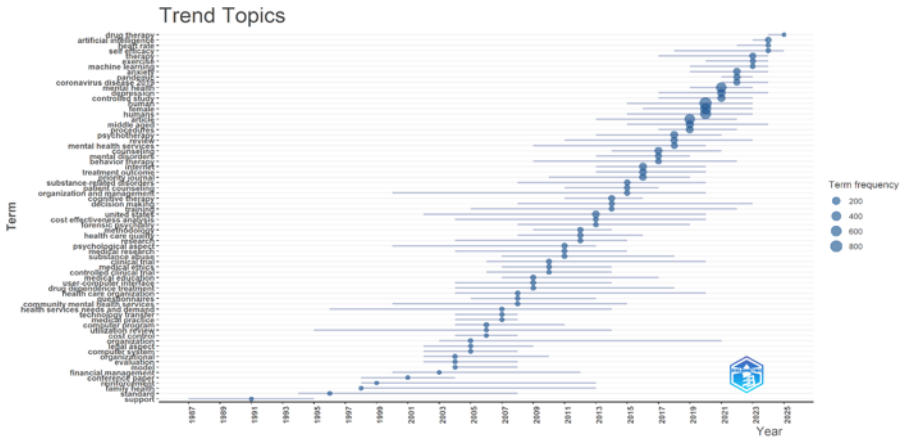

Figure 6. Technology Research Trends in Guidance and Counseling

Since the emergence of technology in guidance and counseling, the keyword support has appeared first. Articles related to this keyword discuss the use of technology as a tool in mental health services. Over the past five years, the most widely studied topics have been therapy, exercise, machine learning, artificial intelligence, and drug therapy. The topic of artificial intelligence has become a favorite in the past five years.

AI is widely used to help the counseling process, including the development of AI-based chatbots. The AI-based counseling chatbots currently quite influential are Weobot, Tess, and Wysa. Woebot App is an AI to help reduce Anxiety and Depression (Yeh et al., 2025). Tess is an AI that focuses on Behavioral intervention technologies (BITs), unique ways to incorporate the benefits of technology and psychology to address differing health needs (Fulmer et al., 2018; Stephens et al., 2019). Wysa is a counseling chatbot using Cognitive Behavior Therapy (CBT) (Beatty et al., 2022). In addition to chatbots, AI is also used to conduct assessments. Such as Rollwage et al. (2023), who developed an AI-based clinical assessment in the UK. Then, Zhai et al. (2024) developed a machine learning-based depression assessment

Issues related to the ethics of AI in counseling are also widely discussed. Moreover, the topic related to the ethics of using AI is also one of the recommendations of the American Counseling Association (ACA) to be studied (ACA, 2024). Such as the research of Ma et al. (2022) discusses the current counseling code of ethics and its relevance to the use of AI. Meadi et al. (2025) highlight the challenges and ethical barriers in dealing with AI Chatbots. Urom et al. (2025) recommend the development of a new code of ethics so that AI-based services prioritize empathy, positive appreciation, and multiculturalism.

4. Conclusion

The results of the bibliometric analysis of technology research in guidance and counseling show a significant increase from 1959 to 2025. The increased number of publications indicates a growing interest in this field of study. This analysis shows an increasing trend in technology research in guidance and counseling. In the last five years, the trend of technology research in guidance and counseling has been related to the topics of therapy, exercise, machine learning, artificial intelligence, and drug therapy. These findings indicate the dynamism of this topic, as well as opportunities for further research and collaboration between researchers in this field. Furthermore, guidance and counseling researchers who are interested in publishing their work in the Scopus database or Scopus-indexed journals can focus their research on keywords that have emerged over the past five years. These keywords are therapy, exercise, machine learning, artificial intelligence, and drug therapy. Researchers can also choose one of the journals that actively publish topics on guidance and counseling technology, such as the Journal of Substance Abuse Treatment, Frontiers in Psychology, and Professional Psychology: Research and Practice.

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All authors have equal contributions to the paper. All the authors have read and approved the final manuscript.

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References

American Counseling Association. (2024). *Further recommendations regarding the future of AI in counseling*. https://www.counseling.org/resources/research-reports/artificial-intelligence-counseling/further-recommendations

Aria, M., & Cuccurullo, C. (2017). bibliometrix: An R-tool for comprehensive science mapping analysis. *Journal of Informetrics, 11*(4), 959–975. https://doi.org/10.1016/j.joi.2017.08.007

Ashari, M. K., Athoillah, S., & Faizin, M. (2023). Model E-Asesmen berbasis aplikasi pada sekolah menengah atas di era digital: Systematic literature review. *TA'DIBUNA: Jurnal Pendidikan Agama Islam, 6*(2), 132–150.

Baas, J., Schotten, M., Plume, A., Côté, G., & Karimi, R. (2020). Scopus is a curated, high-quality bibliometric data source for academic research in quantitative science studies. *Quantitative Science Studies, 1*(1), 377–386. https://doi.org/10.1162/qss_a_00019

Baker, K. D., & Ray, M. (2011). Online counseling: The good, the bad, and the possibilities. *Counselling Psychology Quarterly, 24*(4), 341–346. https://doi.org/10.1080/09515070.2011.632875

Baker, K., Kumar, S., & Pandey, N. (2020). A bibliometric analysis of managerial finance: A retrospective. *Managerial Finance, 46*(11), 1495–1517. https://doi.org/10.1108/MF-06-2019-0277

Bar-Ilan, J. (2008). Which h-index? A comparison of WoS, Scopus and Google Scholar. *Scientometrics, 74*(2), 257–271. https://doi.org/10.1007/s11192-008-0216-y

Beatty, C., Malik, T., Meheli, S., & Sinha, C. (2022). Evaluating the therapeutic alliance with a free-text CBT conversational agent (Wysa): A mixed-methods study. *Frontiers in Digital Health, 4*, 847991.

Best, P., Manktelow, R., & Taylor, B. (2014). Online communication, social media and adolescent wellbeing: A systematic narrative review. *Children and Youth Services Review, 41*, 27–36. https://doi.org/10.1016/j.childyouth.2014.03.001

Birnholtz, J. P. (2006). What does it mean to be an author? The intersection of credit, contribution, and collaboration in science. *Journal of the American Society for Information Science and Technology, 57*(13), 1758–1770. https://doi.org/10.1002/asi.20380

Delmonico, D. L., Daninhirsch, C., Page, B., Walsh, J., L'Amoreaux, N. A., & Thompson, R. S. (2000). The Palace: Participant responses to a virtual support group. *Journal of Technology in Counseling, 1*(2), n2.

Donthu, N., Gremler, D. D., Kumar, S., & Pattnaik, D. (2020). Mapping of *Journal of Service Research* themes: A 22-year review. *Journal of Service Research, 25*(2), 187–193. https://doi.org/10.1177/1094670520977672

Donthu, N., Kumar, S., Mukherjee, D., Pandey, N., & Lim, W. M. (2021). How to conduct a bibliometric analysis: An overview and guidelines. *Journal of Business Research, 133*, 285–296. https://doi.org/10.1016/j.jbusres.2021.04.070

Dvorak, J. (1989). Publications experience as a predictor of college success. *Journalism Quarterly, 66*(3), 702–706. https://doi.org/10.1177/107769908906600325

Elhai, J. D., Levine, J. C., Dvorak, R. D., & Hall, B. J. (2017). Non-social features of smartphone use are most related to depression, anxiety, and problematic smartphone use. *Computers in Human Behavior, 69*, 75–82. https://doi.org/10.1016/j.chb.2016.12.023

Freeman, D., Reeve, S., Robinson, A., Ehlers, A., Clark, D., Spanlang, B., & Slater, M. (2017). Virtual reality in the assessment, understanding, and treatment of mental health disorders. *Psychological Medicine, 47*(14), 2393–2400. https://doi.org/10.1017/S003329171700040X

Fulmer, R., Joerin, A., Gentile, B., Lakerink, L., & Rauws, M. (2018). Using psychological artificial intelligence (Tess) to relieve symptoms of depression and anxiety: Randomized controlled trial. *JMIR Mental Health, 5*(4), e64. https://doi.org/10.2196/mental.9782

González-Pereira, B., Guerrero-Bote, V. P., & Moya-Anegón, F. (2010). A new approach to the metric of journals' scientific prestige: The SJR indicator. *Journal of Informetrics, 4*(3), 379–391. https://doi.org/10.1016/j.joi.2010.03.002

Gustini, N., Ibrahim, T., & Pratama, W. E. (2022). Hubungan manajemen konseling online dan kompetensi teknologi informasi dan komunikasi guru bimbingan konseling. *Jurnal Isema: Islamic Educational Management, 7*(2), 173–184. https://doi.org/10.15575/isema.v7i2.14599

Hapipi, M., Ahmad, K. R., & Amir, L. S. (2024). Implementation of technology in cross-cultural counseling process: Challenges and opportunities. *International Journal of Multicultural Counseling and Development, 1*(1), 10–22.

ISSN: 2797-3174

Hartanto, A., Kasturiratna, K. T. A. S., Kothari, M., Goh, A. Y. H., Quek, F. Y. X., & Majeed, N. M. (2025). Investigating the effect of full and partial social media abstinence on fear of missing out and well-being outcomes: A daily diary experimental approach. *Psychology of Popular Media*. https://doi.org/10.1037/ppm0000583

Hirsch, J. E. (2007). Does the h index have predictive power? *Proceedings of the National Academy of Sciences, 104*(49), 19193–19198. https://doi.org/10.1073/pnas.0707962104

Horesh, D., & Brown, A. D. (2020). Traumatic stress in the age of COVID-19: A call to close critical gaps and adapt to new realities. *Psychological Trauma: Theory, Research, Practice, and Policy, 12*(4), 331–335. https://doi.org/10.1037/tra0000592

Jeong, D., Lee, H., Yang, H., Park, J. C., & Lee, S. M. (2025). AI integration in counseling training: Aiding counselors-in-training in self-efficacy enhancement and anxiety reduction. *Journal of Counseling & Development.* Advance online publication. https://doi.org/10.1002/jcad.12560

Kang, J., Tsai, C., & Lee, S. M. (2025). Effects of technological issues on session evaluation in metaverse counseling: The role of psychological symptoms using HLM analysis. *Journal of Counseling & Development, 103*(2), 172–184. https://doi.org/10.1002/jcad.12548

Kraut, R., Patterson, M., Lundmark, V., Kiesler, S., Mukophadhyay, T., & Scherlis, W. (1998). Internet paradox: A social technology that reduces social involvement and psychological well-being? *American Psychologist, 53*(9), 1017–1031. https://doi.org/10.1037/0003-066X.53.9.1017

Lepp, A., Barkley, J. E., & Karpinski, A. C. (2014). The relationship between cell phone use, academic performance, anxiety, and satisfaction with life in college students. *Computers in Human Behavior, 31*, 343–350. https://doi.org/10.1016/j.chb.2013.10.049

Luxton, D. D., McCann, R. A., Bush, N. E., Mishkind, M. C., & Reger, G. M. (2011). mHealth for mental health: Integrating smartphone technology in behavioral healthcare. *Professional Psychology: Research and Practice, 42*(6), 505–512. https://doi.org/10.1037/a0024485

Ma, L., Zhao, T., Qiu, H., & Lan, Z. (2024). No general code of ethics for all: Ethical considerations in human-bot psycho-counseling. *arXiv preprint arXiv:2404.14070.*

Mestre-Bach, G., Paiva, U., San Martín Iniguez, L., Beranuy, M., Martín-Vivar, M., Mallorquí-Bagué, N., Normand, E., Contreras Chicote, M., Potenza, M. N., & Arrondo, G. (2025). The association between internet-use-disorder symptoms and loneliness: A systematic review and meta-analysis with a categorical approach. *Psychological Medicine, 55*, e77. https://doi.org/10.1017/S0033291725000376

Mohr, D. C., Zhang, M., & Schueller, S. M. (2017). Personal sensing: Understanding mental health using ubiquitous sensors and machine learning. *Annual Review of Clinical Psychology, 13*(1), 23–47. https://doi.org/10.1146/annurev-clinpsy-032816-044949

Muhammad, R. (2024). The effectiveness of technology to improve educational counseling services: A systematic literature review. *Journal of Teaching and Learning, 18*(2), 111–127. https://doi.org/10.22329/jtl.v18i2.8709

Nguyen, V. T., Kravets, A. G., & Duong, T. Q. H. (2021). Predicting research trends based on bibliometric analysis and paper ranking algorithm. In *Proceedings* (pp. 109–123). https://doi.org/10.1007/978-3-030-67892-0_10

Norris, M., & Oppenheim, C. (2010). The h-index: A broad review of a new bibliometric indicator. *Journal of Documentation, 66*(5), 681–705. https://doi.org/10.1108/00220411011066790

Orben, A., & Przybylski, A. K. (2019). The association between adolescent well-being and digital technology use. *Nature Human Behaviour, 3*(2), 173–182. https://doi.org/10.1038/s41562-018-0506-1

Permatasari, Y., Suhaili, N., & Firman, F. (2021). Inovasi program layanan BK berbasis digital pada masa pandemi COVID-19. *Jurnal Al-Taujih: Bingkai Bimbingan dan Konseling Islami, 7*(1), 38–44.

Powell, K. R., & Peterson, S. R. (2017). Coverage and quality: A comparison of Web of Science and Scopus databases for reporting faculty nursing publication metrics. *Nursing Outlook, 65*(5), 572–578. https://doi.org/10.1016/j.outlook.2017.03.004

Price, M., Yuen, E. K., Goetter, E. M., Herbert, J. D., Forman, E. M., Acierno, R., & Ruggiero, K. J. (2014). mHealth: A mechanism to deliver more accessible, more effective mental health care. *Clinical Psychology & Psychotherapy, 21*(5), 427–436.

Radiani, W. A., & Fadilah, H. (2024). Cyberbullying and cyber counseling services. *Jurnal EDUCATIO: Jurnal Pendidikan Indonesia, 10*(2), 290–298.

Ravshanovna, K. L., & Abdi-Xafizovna, K. M. (2025). The role of modern digital technologies in education: Transforming learning environments and enhancing student outcomes. *Modern Educational System and Innovative Teaching Solutions, 1*(5), 160–165.

Rollwage, M., Habicht, J., Juechems, K., Carrington, B., Viswanathan, S., Stylianou, M., Hauser, T. U., & Harper, R. (2023). Using conversational AI to facilitate mental health assessments and improve clinical efficiency within psychotherapy services: Real-world observational study. *JMIR AI, 2*, e44358. https://doi.org/10.2196/44358

Scott, D. A., Valley, B., & Simecka, B. A. (2017). Mental health concerns in the digital age. *International Journal of Mental Health and Addiction, 15*(3), 604–613. https://doi.org/10.1007/s11469-016-9684-0

Setiawan, W. A. W., & Nabyla, F. (2022). Sistem informasi bimbingan konseling berbasis web menggunakan PHP dan MySQL di SMK Nurul Huda NU Paguyangan: Array. *Jurnal Sistem Informasi dan Teknologi Peradaban, 3*(1), 23–30.

ISSN: 2797-3174

Shatte, A. B. R., Hutchinson, D. M., & Teague, S. J. (2019). Machine learning in mental health: A scoping review of methods and applications. *Psychological Medicine, 49*(9), 1426–1448. https://doi.org/10.1017/S0033291719000151

Sinaga, W. M. B. B., & Firmansyah, A. (2024). Perubahan paradigma pendidikan di era digital. *Jurnal Teknologi Pendidikan, 1*(4), 10. https://doi.org/10.47134/jtp.v1i4.492

Stephens, T. N., Joerin, A., Rauws, M., & Werk, L. N. (2019). Feasibility of pediatric obesity and prediabetes treatment support through Tess, the AI behavioral coaching chatbot. *Translational Behavioral Medicine, 9*(3), 440–447.

Sudibyo, H. (2017). Peningkatan kemampuan menyusun program BK berbantuan aplikasi dengan metode kerja kelompok. *Jurnal Penelitian Pendidikan Indonesia, 1*(4).

Upadhyay, S., Chaskar, A., & Sigala, M. (2023). Breaking waves: A bibliometric odyssey on crisis communication in tourism and hospitality (1980–2022) and paving the path for future research. *Journal of Contingencies and Crisis Management, 31*(4), 941–953. https://doi.org/10.1111/1468-5973.12494

Urom, C., Grey, B., Lindinger-Sternart, S., & Lucey, S. (2025). The new wave: Integrating artificial intelligence into ethical and multicultural counselling. *Counselling and Psychotherapy Research, 25*(1), e12830.

Valla, L. G., Rossi, M., Gaia, A., Guaita, A., & Rolandi, E. (2025). The impact of the COVID-19 pandemic on oldest-old social capital and health and the role of digital inequalities: Longitudinal cohort study. *Journal of Medical Internet Research, 27*, e62824. https://doi.org/10.2196/62824

Weizenbaum, J. (1966). ELIZA—a computer program for the study of natural language communication between man and machine. *Communications of the ACM, 9*(1), 36–45.

Xue, L., Rashid, A. M., & Ouyang, S. (2024). The unified theory of acceptance and use of technology (UTAUT) in higher education: A systematic review. *Sage Open, 14*(1). https://doi.org/10.1177/21582440241229570

Yeh, P. L., Kuo, W. C., Tseng, B. L., & Sung, Y. H. (2025). Does the AI-driven chatbot work? Effectiveness of the Woebot app in reducing anxiety and depression in group counseling courses and student acceptance of technological aids. *Current Psychology.* Advance online publication.

Zaščirinska, K., Šuriņa, S., & Mārtinsone, K. (2024). Trends in dance/movement therapy research: A bibliometric analysis of publications in the Scopus bibliographic and citation information database. *The Arts in Psychotherapy, 90*, 102195. https://doi.org/10.1016/j.aip.2024.102195

ISSN: 2797-3174