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Mapping the Landscape of Online Psychological Counseling Research (2010–2026): A Bibliometric and Science Mapping Analysis

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Abstract

Online psychological counseling has expanded rapidly over the past decade, particularly following the COVID-19 pandemic, yet the intellectual structure and dynamics of the field remain insufficiently mapped. This study provides a bibliometric and science mapping analysis of research on online psychological counseling indexed in the Web of Science Core Collection between 2010 and 2026. A total of 2,733 articles and review articles published in English were retrieved from the Social Sciences Citation Index, the Science Citation Index Expanded, and the Emerging Sources Citation Index, and were analyzed through performance analysis and science mapping using VOSviewer and the bibliometrix package in R. Annual output increased approximately tenfold, from 27 documents in 2010 to a peak of 280 in 2021, followed by a phase of consolidation characterized by stable annual production. The corpus accumulated 75,378 citations, with a mean of 27.6 citations per document. The Journal of Medical Internet Research was the leading source; Andersson, G. was the most productive and the most cited author; Karolinska Institutet was the leading institution; and the United States, Sweden, and Australia were the most productive countries. Approximately 29.5% of the documents were internationally co-authored, and international collaboration was associated with higher citation impact. In the thematic map, author keywords formed six clusters organized around two motor themes—internet-based cognitive behavioral therapy for depression and anxiety and its randomized evidence base—alongside a basic and transversal theme on telehealth service delivery, a niche theme on disorder-specific treatments, and peripheral themes addressing child and adolescent applications and evidence synthesis. COVID-19, digital mental health, teletherapy, digital health, artificial intelligence, and machine learning emerged as new themes after 2020. The findings delineate the knowledge base of the field, identify its most influential actors, and highlight directions for future research, counselor education, and digital mental health policy.

Keywords: online psychological counseling, telepsychology, bibliometric analysis, science mapping, VOSviewer



Introduction

Mental disorders account for a substantial and growing share of the global burden of disease and remain among the leading causes of years lived with disability, yet a considerable proportion of individuals who need psychological care never receive it (Kessler et al., 2005; Patel et al., 2018). Structural barriers such as the shortage and uneven geographic distribution of mental health professionals, long waiting lists, stigma, financial cost, and limited transportation render timely access to psychological services difficult, particularly for people living in rural and underserved communities (Andersson & Titov, 2014; World Health Organization, 2022). The rapid expansion of digital technologies has prompted a fundamental rethinking of how psychological help is delivered, and information and communication technologies are increasingly regarded as a promising means of narrowing the treatment gap and extending the reach of mental health services (Andersson, Titov, Dear, Rozental, & Carlbring, 2019; Barak, Hen, Boniel-Nissim, & Shapira, 2008).

Online psychological counseling—variously referred to as online counseling, e-counseling, teletherapy, telepsychology, distance counseling, or internet-based counseling—denotes the delivery of psychological services through synchronous or asynchronous digital channels, including videoconferencing, live text chat, telephone, e-mail, and mobile applications (Barak, Klein, & Proudfoot, 2009; Richards & Viganò, 2013). Although these labels are frequently used interchangeably, they differ with respect to the degree of technological mediation, the temporal synchrony of the interaction, and the extent to which a human counselor remains involved in the therapeutic process (Barak et al., 2009). This terminological heterogeneity complicates cumulative knowledge building and has produced a body of scholarship that is dispersed across counseling psychology, clinical psychology, psychiatry, medical informatics, and educational technology (Dowling & Rickwood, 2013; Sucala et al., 2012).

The historical development of online counseling can be traced from early text-based exchanges conducted through e-mail and chat rooms in the 1990s, through the gradual adoption of synchronous audio and video technologies, to the contemporary proliferation of mobile applications, blended service models, and, more recently, artificial intelligence-supported tools (Barak et al., 2008; Rochlen, Zack, & Speyer, 2004). Each of these technological generations has reshaped the practical and relational dimensions of the counseling encounter, generating new questions about presence, non-verbal communication, confidentiality, and the conditions under which a working alliance can be established and sustained at a distance (Richards & Viganò, 2013).

Empirical evidence concerning the effectiveness of online psychological counseling has accumulated steadily over the past two decades. Meta-analytic and systematic reviews indicate that internet-based and remotely delivered psychological interventions can produce effects comparable to those of face-to-face treatment for common mental health conditions such as depression and anxiety, and that the therapeutic alliance established online is generally rated as strong and comparable to that observed in conventional settings (Andersson, Cuijpers, Carlbring, Riper, & Hedman, 2014; Andersson et al., 2019; Barak et al., 2008; Sucala et al., 2012). At the same time, reviews have highlighted important boundary conditions,

including considerable heterogeneity across studies in terms of intervention content, therapeutic modality, level of human support, and outcome measurement (Andersson & Titov, 2014; Dowling & Rickwood, 2013).

The global COVID-19 pandemic acted as a powerful catalyst for the field. Social distancing measures and the sudden transition to remote service delivery forced counselors, psychologists, and mental health institutions to adopt digital modalities at an unprecedented pace, thereby transforming online counseling from a niche practice into a mainstream mode of service provision (Békés & Aafjes-van Doorn, 2020). This acceleration not only increased the volume of scholarly output but also redirected research attention toward matters of counselor competence, training, digital ethics, and equitable access to technology.

Despite this momentum, the field faces persistent challenges. Ethical and legal concerns regarding confidentiality, data security, informed consent, and jurisdiction remain insufficiently resolved; the digital divide continues to limit access for socioeconomically disadvantaged groups; and the assessment and management of crisis situations at a distance demand competencies that are not yet systematically integrated into counselor education (Andersson & Titov, 2014; Richards & Viganò, 2013). Furthermore, the rapid diversification of terminology, technologies, and publication venues has rendered the scholarly landscape increasingly fragmented and difficult to navigate for researchers, practitioners, and policymakers alike.

Bibliometric analysis offers a systematic and quantitative means of addressing this fragmentation. By combining performance analysis, which examines the productivity and impact of actors such as authors, institutions, countries, and sources, with science mapping, which visualizes the structural and dynamic relationships among them, bibliometric methods can reveal the intellectual architecture of a research domain, identify its most influential contributions, and trace the emergence of new themes (Donthu, Kumar, Mukherjee, Pandey, & Lim, 2021; Zupic & Čater, 2015). Techniques such as co-authorship, co-word, citation, and bibliographic coupling analyses are widely used to describe collaboration patterns and conceptual structures, while thematic mapping based on co-word analysis enables the identification of well-developed, emerging, and declining research themes (Callon, Courtial, & Laville, 1991). Although bibliometric approaches have been applied extensively to adjacent areas such as e-learning, educational technology, and digital mental health, a comprehensive and up-to-date mapping of the online psychological counseling literature remains largely absent.

Accordingly, the present study provides a bibliometric and science mapping analysis of the scientific literature on online psychological counseling indexed in the Web of Science Core Collection between 2010 and 2026. It complements and extends prior narrative and systematic reviews by offering a macroscopic, longitudinal account of how the field has evolved, which actors and contributions have shaped it, and which themes are currently emerging. In doing so, the study aims to provide researchers with a structured overview of the field, to inform the design of counselor education and training programs, and to guide evidence-informed decisions regarding the integration of digital modalities into mental health services.

Purpose and Research Questions

The purpose of this study is to map the scientific landscape of online psychological counseling research between 2010 and 2026 through a bibliometric and science mapping analysis of documents indexed in the Web of Science Core Collection. In line with this purpose, the study seeks to answer the following research questions:

RQ1. How has the scientific output on online psychological counseling evolved between 2010 and 2026 in terms of annual publication volume, document types, and productivity?

RQ2. Which sources, authors, institutions, and countries are the most productive and influential in the field?

RQ3. What patterns of international and institutional collaboration characterize the field?

RQ4. Which documents are the most cited, and how are citations distributed across the field?

RQ5. What intellectual and thematic structure emerges from keyword co-occurrence and thematic mapping, and which themes are emerging?

Method

Research Design

This study employed a bibliometric analysis design combining performance analysis and science mapping. Performance analysis was used to describe the productivity and impact of the field in terms of publication counts, citation indicators, and the contributions of sources, authors, institutions, and countries. Science mapping was used to visualize the structural and relational organization of the field through co-authorship, co-occurrence, citation, and bibliographic coupling networks (Donthu et al., 2021; Zupic & Čater, 2015). This dual approach provides both a descriptive account of the field's development and an interpretative representation of its conceptual and social structure.

Data Source and Search Strategy

The data were retrieved from the Web of Science Core Collection, which was selected because of its selective coverage of high-impact, peer-reviewed journals in the social and health sciences and its suitability for large-scale bibliometric analyses (Aria & Cuccurullo, 2017). The search was restricted to the Social Sciences Citation Index (SSCI), the Science Citation Index Expanded (SCI-EXPANDED), and the Emerging Sources Citation Index (ESCI) editions of the Web of Science Core Collection, to documents published between 2010 and 2026, written in English, and assigned to the four Web of Science categories in which mental health service delivery is concentrated: Psychology (including its subcategories), Psychiatry, Health Care Sciences & Services, and Medical Informatics. This category set was determined empirically from the Web of Science category distribution of the initial result set (Analyze Results), which showed that a substantial share of the online-counseling literature is indexed under Psychiatry and Health Care Sciences & Services rather than under Psychology alone. The document type was limited to articles and review articles so that the corpus would include both original empirical research and the meta-analyses and systematic reviews that constitute a central part of the field's knowledge base. To ensure that the online-counseling

concept was central to each retrieved record, the core technology-mediated delivery terms were required to appear in the title, whereas the broader counseling and mental health terms were searched across the topic fields (title, abstract, author keywords, and Keywords Plus). The search was conducted on October 16, 2026, using the following query:

TI=("online counsel*" OR "online counselling" OR "online therapy" OR "online psychotherap*" OR telepsycholog* OR telecounsel* OR telecounsell* OR teletherapy OR telebehavioral OR telebehavioural OR "telemental health" OR "e-counsel*" OR "e-therapy" OR "internet-based" OR "internet-delivered" OR "web-based counsel*" OR "web-based therap*" OR "web-based intervention*" OR "distance counsel*" OR cybercounsel* OR "virtual counsel*" OR videotherapy OR videoconferenc* OR "remote psychotherap*" OR "technology-assisted") AND TS=(counsel* OR therap* OR psychotherap* OR "mental health")

The retrieved records were screened against clearly defined inclusion and exclusion criteria. Studies were included if they were peer-reviewed documents focusing on the delivery of psychological counseling or psychotherapy through digital channels, published in English between 2010 and 2026, and indexed as articles or reviews. Documents were excluded if they addressed only face-to-face services, focused exclusively on technological development without a counseling or mental health component, or were editorials, errata, or conference abstracts that lacked sufficient bibliographic metadata. The initial query returned 4,121 records. Restricting these to the publication years, language, document type, and subject categories specified above reduced the set to 2,736 documents, which were exported in plain-text format with full records and cited references. Two records assigned to a 2027 publication year (ahead-of-print articles) and one retracted publication were removed during data cleaning, yielding a final analytical corpus of 2,733 documents.

Data Analysis

Two complementary software packages were used for the analysis. VOSviewer was employed to construct and visualize bibliometric networks, including co-authorship, co-occurrence of author keywords, and citation-based networks, using its distance-based and clustering algorithms (van Eck & Waltman, 2010). All networks were constructed using full counting, so that each document contributes all of its authors, keywords, and references to the corresponding links; author keywords were analyzed as recorded in the database, without thesaurus-based merging of synonyms or spelling variants. bibliometrix, implemented through the biblioshiny interface in R, was used for performance analysis and science mapping, including the computation of descriptive indicators, source and author impact metrics, country collaboration analysis, and the thematic map based on co-word analysis (Aria & Cuccurullo, 2017). The three-field plot was generated with a custom ggplot2 implementation in R from the same record set. In line with established practice in co-word analysis, only author keywords occurring at least ten times were retained for the co-occurrence network and the thematic map, and clusters were identified through modularity-based community detection within the Cartesian framework of Callon et al. (1991). Total link strengths were computed from the author keyword co-occurrence matrix and corresponded exactly to the values reported by VOSviewer.

For the thematic map, keywords were clustered according to their co-occurrence links, and the resulting clusters were positioned along the dimensions of centrality (relevance) and density (development), following the framework proposed by Callon et al. (1991). This procedure made it possible to distinguish motor themes, basic and transversal themes, niche themes, and emerging or declining themes. Throughout the analysis, standardized bibliometric indicators such as the total number of publications, total citations, average citations per document, and the h-index were reported, and the results were organized according to the research questions outlined above.

Results

Publication Output and Growth Trend

Figure 1 presents the annual evolution of scientific output on online psychological counseling between 2010 and 2026. A total of 2,733 documents were published during the study period, accumulating 75,378 citations ($M = 27.6$ citations per document; $Mdn = 12$). Annual output rose from 27 documents in 2010 to a peak of 280 documents in 2021, an approximately tenfold increase within little more than a decade. Three broad phases can be distinguished. The first (2010–2015) was a phase of gradual growth, in which annual production increased from 27 to 93 documents as internet-delivered treatment moved from feasibility studies toward controlled evaluations. The second (2016–2021) was one of marked acceleration, with annual output rising from 112 to 280 documents and growth peaking during the COVID-19 pandemic, when the remote delivery of psychological services became a public health necessity. The third (2022–2026) is a phase of consolidation: annual output stabilized at between 256 and 272 documents, and the 236 documents recorded for 2026 represent a partial year only, because the search was conducted in October 2026. Table 1 reports the annual distribution of publications together with citation indicators. Mean citations per document were highest for the earliest cohorts (77.5 in 2014 and 76.6 in 2012) and declined steadily thereafter to 2.8 in 2025, a pattern that primarily reflects the shorter citation window available to recent publications rather than a decline in scholarly impact.

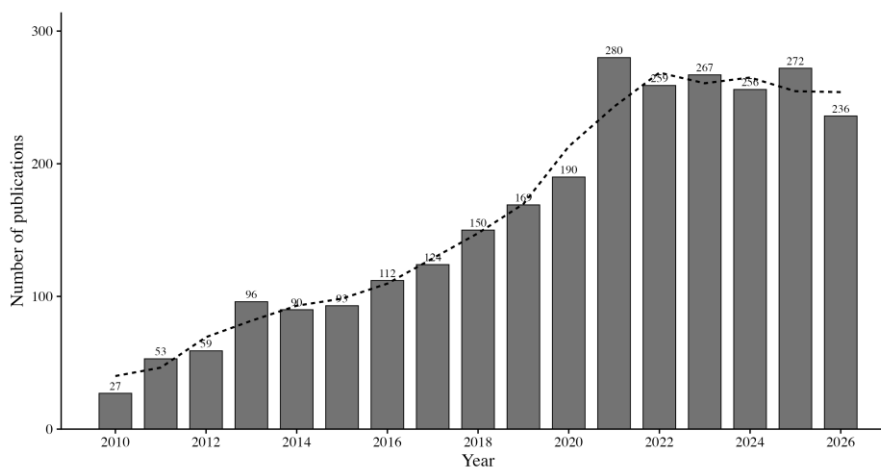


Figure 1. Annual publication trend on online psychological counseling (2010–2026). The dashed line shows the 3-year centered moving average (2-year at the series endpoints).

Table 1. Annual Distribution of Publications and Citations (2010–2026)

Year	TP	% of Total	TC	CPP
2010	27	1.0	1,993	73.8
2011	53	1.9	3,796	71.6
2012	59	2.2	4,518	76.6
2013	96	3.5	6,340	66.0
2014	90	3.3	6,971	77.5
2015	93	3.4	4,801	51.6
2016	112	4.1	5,956	53.2
2017	124	4.5	5,834	47.0
2018	150	5.5	6,918	46.1
2019	169	6.2	5,612	33.2
2020	190	7.0	5,548	29.2
2021	280	10.2	7,203	25.7
2022	259	9.5	4,240	16.4
2023	267	9.8	3,081	11.5
2024	256	9.4	1,668	6.5
2025	272	10.0	748	2.8
2026	236	8.6	151	0.6
Total	2,733	100.0	75,378	27.6

Note. TP = total publications; TC = total citations recorded in Web of Science at the time of data collection (October 2026); CPP = average citations per publication. Percentages may not sum to 100 owing to rounding.

Document Types, Languages, and Sources

As shown in Table 2, the corpus was dominated by empirical articles ($n = 2,465$; 90.2%), followed by review articles ($n = 268$; 9.8%). Because the search was restricted to English-language records, all documents (100%) were published in English; this criterion ensured comparability but excludes relevant work published in other languages. The documents appeared in 444 distinct journals, indicating that research on online psychological counseling is dispersed across a wide range of outlets. As shown in Table 3, the most productive sources were the Journal of Medical Internet Research and Internet Interventions, each contributing 226 documents; the Journal of Medical Internet Research attracted substantially more citations (10,779 vs. 2,982). The remainder of the top ten comprised JMIR Mental Health (97), BMC Psychiatry (86), JMIR Research Protocols (80), JMIR Formative Research (75), Telemedicine and e-Health (67), Frontiers in Psychiatry (62), Behaviour Research and Therapy (61), and Frontiers in Psychology (60). Together, the ten most productive sources account for 1,040 documents, or 38.1% of the corpus. Four of the ten leading journals belong to the JMIR family, and the list spans clinical psychology, psychiatry, behavioral therapy, and medical informatics, suggesting that the field is not confined to a single specialized journal.

Table 2. Distribution of Documents by Type and Language

Category	f	%
Document type: Article	2,465	90.2
Document type: Review article	268	9.8
Language: English	2,733	100.0

Note. f = frequency.

Table 3. Top 10 Most Productive Sources

Rank	Source	TP	TC	Publisher
1	Journal of Medical Internet Research	226	10,779	JMIR Publications
2	Internet Interventions	226	2,982	Elsevier
3	JMIR Mental Health	97	2,490	JMIR Publications
4	BMC Psychiatry	86	1,876	BMC (Springer Nature)
5	JMIR Research Protocols	80	758	JMIR Publications

6	JMIR Formative Research	75	462	JMIR Publications
7	Telemedicine and e-Health	67	2,433	Mary Ann Liebert
8	Frontiers in Psychiatry	62	1,164	Frontiers Media
9	Behaviour Research and Therapy	61	4,022	Elsevier (Pergamon)
10	Frontiers in Psychology	60	876	Frontiers Media

Note. TP = total publications; TC = total citations (Web of Science, October 2026).

Most Productive Authors, Institutions, and Countries

Table 4 lists the ten most productive authors in the field. The most prolific author was Andersson, G. (215 documents), followed by Titov, N. (100) and Carlbring, P. (86). Andersson, G. also ranked first by citation impact, with 13,327 citations and an h-index of 58, ahead of Carlbring, P. (6,875 citations; h = 41) and Cuijpers, P. (6,746; h = 34), indicating that productivity and influence were largely aligned among the leading authors, although some highly productive authors accumulated fewer citations per document. The corpus involved 10,277 distinct authors and 1,677 distinct institutions, with an average of 6.3 authors and 3.4 institutions per document. At the institutional level, the leading contributors were Karolinska Institutet (566 documents), Linköping University (350), and Vrije Universiteit Amsterdam (270). Table 5 presents the ten most productive countries; the United States ranked first (776 documents; 21,636 citations), followed by Sweden (443) and Australia (383), while the Netherlands recorded the highest average impact (CPP = 59.0), ahead of Switzerland (42.8) and Sweden (40.7). Authors from 72 countries contributed to the corpus, indicating that the field is geographically concentrated yet globally distributed.

Table 4. Top 10 Most Productive Authors

Rank	Author	Affiliation	Country	TP	TC	h-index
1	Andersson, G.	Linköping University	Sweden	215	13,327	58
2	Titov, N.	Macquarie University	Australia	100	4,328	31
3	Carlbring, P.	Stockholm University	Sweden	86	6,875	41
4	Dear, B. F.	Macquarie University	Australia	85	2,733	28
5	Hadjistavropoulos, H. D.	University of Regina	Canada	70	1,429	23
6	Berger, T.	University of Bern	Switzerland	67	2,892	27
7	Cuijpers, P.	Vrije Universiteit Amsterdam Technical	Netherlands	61	6,746	34
8	Ebert, D. D.	University of Munich	Germany	60	2,883	25
9	Riper, H.	Vrije Universiteit Amsterdam	Netherlands	53	5,779	32
10	Kaldo, V.	Karolinska Institutet	Sweden	50	2,190	23

Note. TP = total publications; TC = total citations (Web of Science, October 2026); h-index = local h-index computed within the analyzed corpus.

Table 5. Top 10 Most Productive Countries

Rank	Country	TP	TC	CPP	MCP
1	United States	776	21,636	27.9	248
2	Sweden	443	18,020	40.7	211
3	Australia	383	14,420	37.7	177
4	Germany	356	12,174	34.2	185

5	United Kingdom	254	9,668	38.1	158
6	Canada	232	5,070	21.9	127
7	Netherlands	230	13,576	59.0	150
8	China	136	1,967	14.5	52
9	Switzerland	119	5,091	42.8	90
10	Spain	107	2,674	25.0	65

Note. TP = total publications; TC = total citations (Web of Science, October 2026); CPP = average citations per publication; MCP = multiple-country publications.

International Collaboration

Figure 2 displays the country co-authorship network. The largest nodes correspond to the United States, the United Kingdom, Germany, Sweden, and Australia, which also exhibited the highest total link strengths. The network is organized into six clusters. Prominent clusters include one combining Spain, Portugal, Brazil, Iran, and several further Latin American and Asian contributors; a second linking the United States, the United Kingdom, China, and India; a third bringing together Germany, Switzerland, Italy, and Austria; and a fourth grouping the Nordic countries together with Australia and Canada. A total of 805 documents (29.5%) were internationally co-authored, whereas 1,928 documents (70.5%) were produced by teams from a single country. The share of internationally co-authored work varied considerably across countries: the highest proportions were recorded by authors from Switzerland (76%) and Denmark (76%), the latter falling outside the ten most productive countries; among the ten most productive countries, the Netherlands (65%) and the United Kingdom (62%) were the most internationally connected, whereas the United States (32%) and China (38%) relied comparatively more on domestic collaboration. Overall, the countries with the highest rates of international collaboration also tended to record the highest average citation impact, suggesting that cross-national teams are associated with greater scholarly reach.

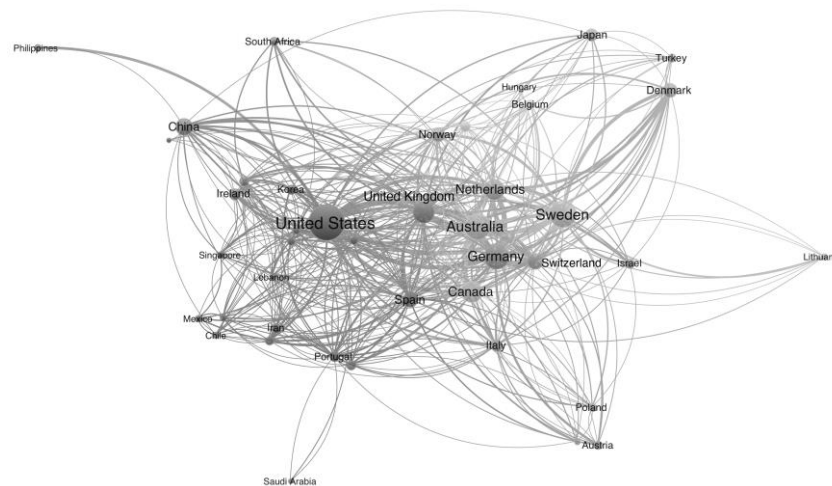


Figure 2. Country co-authorship network (VOSviewer). Node size reflects the number of documents published by each country and shading indicates cluster membership; only countries with at least five documents are shown.

Most Cited Documents

Table 6 reports the ten most cited documents in the corpus. The most cited study was Kelders, Kok, Ossebaard, and Van Gemert-Pijnen (2012), a systematic review of persuasive system design and adherence in web-

based interventions, with 998 citations, followed by Andersson and Titov (2014; 883 citations), Carlbring, Andersson, Cuijpers, Riper, and Hedman-Lagerlöf (2018; 880 citations), and Andersson et al. (2014; 802 citations). Collectively, the ten most cited documents accumulated 7,018 citations, representing 9.3% of all citations received by the corpus, which points to a relatively concentrated knowledge base. The most influential contributions are predominantly systematic reviews and meta-analyses of internet-based cognitive behavioral therapy (including individual participant data meta-analyses by Karyotaki et al., 2017, 2021), complemented by landmark reviews of videoconferencing psychotherapy and telemental health (Backhaus et al., 2012; Hilty et al., 2013). Overall, 264 documents (9.7%) had not yet received any citation, whereas 139 documents (5.1%) had accumulated 100 or more citations.

Table 6. Top 10 Most Cited Documents

Rank	Document (Author, Year)	Source	TC
1	Kelders et al. (2012)	Journal of Medical Internet Research	998
2	Andersson & Titov (2014)	World Psychiatry	883
3	Carlbring et al. (2018)	Cognitive Behaviour Therapy	880
4	Andersson et al. (2014)	World Psychiatry	802
5	Karyotaki et al. (2021)	JAMA Psychiatry	715
6	Hilty et al. (2013)	Telemedicine and e-Health	695
7	Karyotaki et al. (2017)	JAMA Psychiatry	554
8	Andersson et al. (2019)	World Psychiatry	541
9	Melville et al. (2010)	British Journal of Clinical Psychology	497
10	Backhaus et al. (2012)	Psychological Services	453

Note. TC = total citations (Web of Science, October 2026).

Keyword Co-occurrence and Thematic Structure

Figure 3 presents the author keyword co-occurrence network. Across the corpus, 4,525 unique author keywords were recorded, corresponding to 15,102 keyword assignments. Of these, 219 keywords met the ten-occurrence threshold and were included in the co-occurrence network. The most frequent keywords were depression (491 occurrences; total link strength = 1,620), internet (346; 1,114), and anxiety (285; 1,097); Table 7 lists the ten most frequent keywords together with their total link strength. The network is organized into seven clusters. The largest (52 keywords) centers on internet-based cognitive behavioral therapy and its application to specific anxiety disorders, followed by a cluster on telehealth, telemental health, and COVID-19 (39 keywords); further clusters cover digital health and implementation, web-based interventions for trauma and substance use, the depression and anxiety evidence base, children and adolescents, and systematic reviews of cognitive behavioral therapy. The thematic map generated from author keywords occurring at least ten times is presented in Figure 4 and summarized in Table 8; because this map is produced with the co-word analysis implemented in biblioshiny rather than with the clustering algorithm of VOSviewer, it distributes the same keywords across six thematic clusters in the four quadrants of the Callon framework. Two clusters occupied the motor region, indicating themes that are both central to the network and internally well developed: the evaluation of internet-based cognitive behavioral therapy for depression and anxiety (Cluster 1), and the randomized evidence base for internet-based interventions (Cluster 4). One cluster, telehealth and telemental health service delivery, was positioned in the basic and transversal region, reflecting its high centrality but comparatively loose internal structure (Cluster 3). Internet-based treatment for specific disorders and populations formed a niche

theme (Cluster 2), whereas digital interventions for children and adolescents (Cluster 5) and the synthesis of evidence through systematic reviews and meta-analyses (Cluster 6) occupied the lower-left quadrant of the map. A comparison of keyword prevalence between the periods 2010–2019 and 2023–2026 highlights several emerging themes: covid-19 (0 to 58 documents), digital mental health (0 to 32), teletherapy (2 to 46), digital health (2 to 34), artificial intelligence (1 to 13), and machine learning (0 to 10). Figure 5 presents a three-field plot linking leading sources, prolific authors, and core author keywords, illustrating how foundational authors—most notably Andersson, G., Titov, N., and Dear, B. F.—channel outputs primarily through Internet Interventions and the Journal of Medical Internet Research toward the core themes of depression, internet, and anxiety. Finally, Figure 6 visualizes the bibliographic coupling network of the documents with at least 100 citations forming the largest connected component ($n = 138$ of 139). The network separates the literature on adherence to and the evaluation of internet-based interventions from a distinct cluster of telehealth and telemental health research, alongside clusters formed by landmark trials of internet-based cognitive behavioral therapy, by individual patient data meta-analyses, and by studies of children and adolescents.

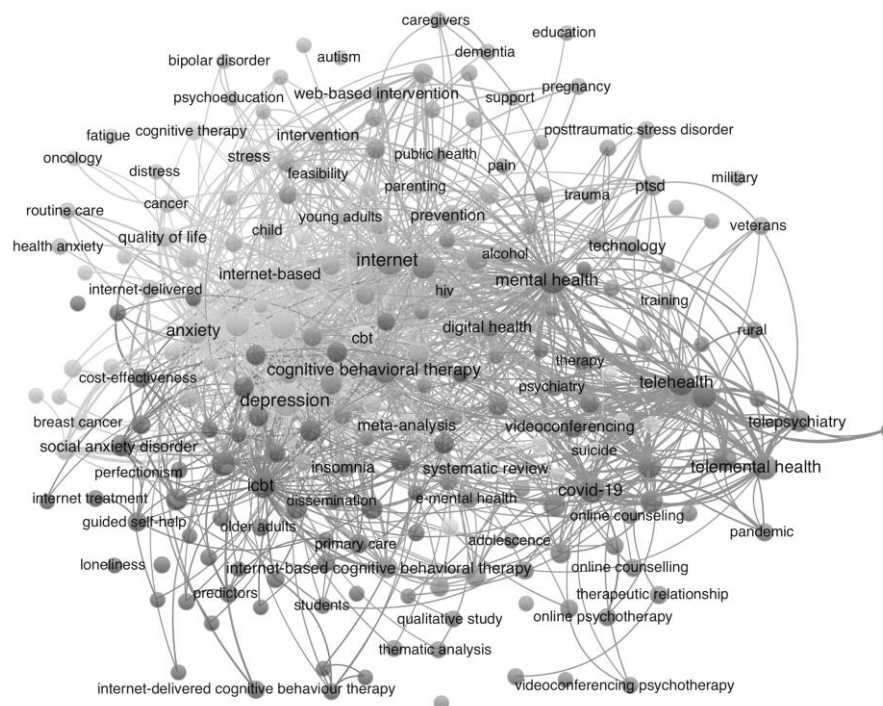


Figure 3. Author keyword co-occurrence network (VOSviewer). Node size reflects keyword occurrences and shading indicates cluster membership; only keywords occurring at least ten times are shown.

Table 7. Most Frequent Author Keywords

Rank	Author Keyword	Occurrences	Total Link Strength
1	depression	491	1,620
2	internet	346	1,114
3	anxiety	285	1,097
4	mental health	234	888
5	randomized controlled trial	211	709
6	cognitive behavioral therapy	206	740

7	telehealth	205	568
8	covid-19	171	471
9	telemedicine	140	450
10	internet-based intervention	137	391

Note. Occurrences and total link strength as reported in VOSviewer for author keywords occurring at least ten times.

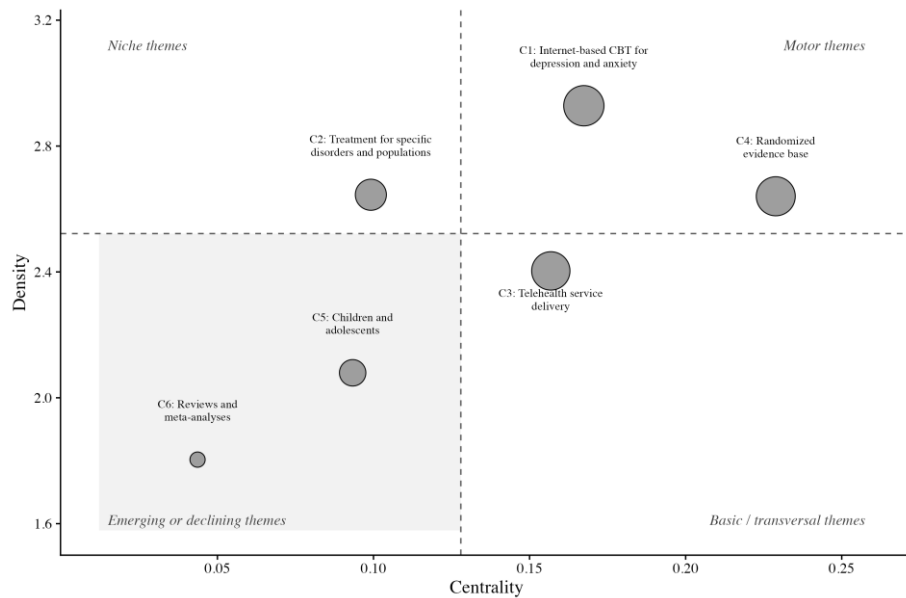


Figure 4. Thematic map of author keywords (biblioshiny). The dashed lines mark the median values of centrality and density and divide the map into four quadrants; the shaded quadrant corresponds to emerging or declining themes.

Table 8. Thematic Clusters of Author Keywords

Cluster	Theme Label	Representative Keywords	Theme Type
1	Internet-based cognitive behavioral therapy for depression and anxiety	depression; anxiety; icbt; cognitive behaviour therapy; social anxiety disorder; internet-based cognitive behavioral therapy; internet-based treatment; transdiagnostic; internet interventions; e-health	Motor
2	Internet-based treatment for specific disorders and populations	internet; cognitive behavior therapy; treatment; adolescent; online; prevention; ptsd; alcohol; cognitive therapy; posttraumatic stress disorder	Niche
3	Telehealth and telemental health service delivery	mental health; telehealth; covid-19; telemedicine; telemental health; psychotherapy; telepsychology; videoconferencing; teletherapy; online therapy; telepsychiatry; digital health	Basic/transversal
4	Randomized evidence for internet-based interventions	randomized controlled trial; cognitive behavioral therapy; internet-based intervention; ehealth; internet intervention; intervention; internet-based; mindfulness; self-help; stress; acceptance and commitment therapy; web-based intervention	Motor

Cluster	Theme Label	Representative Keywords	Theme Type
5	Digital interventions for children and adolescents	cbt; adolescents; obsessive-compulsive disorder; cognitive-behavioral therapy; adherence; children	Emerging/declining
6	Synthesis of evidence: systematic reviews and meta-analyses	meta-analysis; systematic review	Emerging/declining

Note. Theme types follow the Cartesian diagram of Callon et al. (1991): motor, basic/transversal, niche, and emerging/declining.

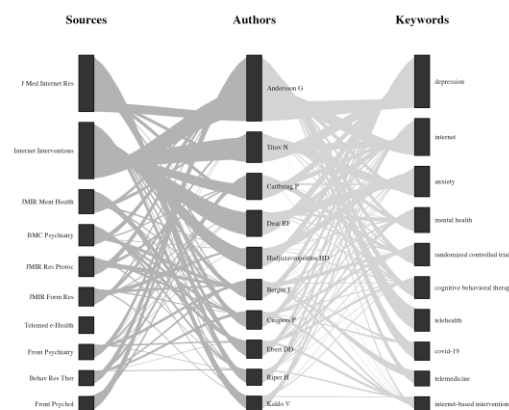


Figure 5. Three-field plot linking the ten most productive sources and authors with the ten most frequent author keywords. Node heights reflect the number of documents (sources and authors) or keyword occurrences.

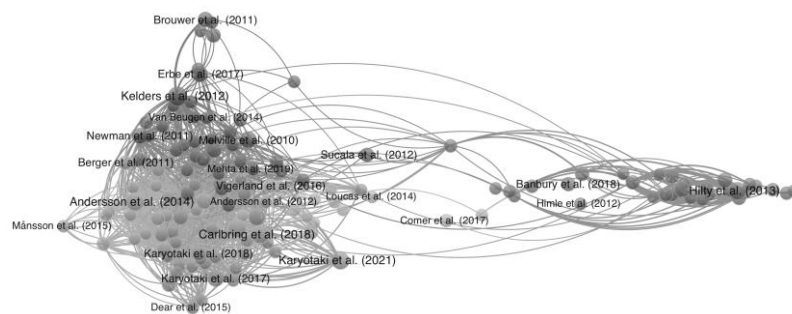


Figure 6. Bibliographic coupling network of documents (VOSviewer). Node size reflects citations and shading indicates cluster membership; only documents with at least 100 citations forming the largest connected component ($n = 138$ of 139) are shown.

Discussion

This study set out to map the scientific landscape of online psychological counseling between 2010 and 2026 by combining performance analysis with science mapping. Taken together, the results describe a field that has grown rapidly, consolidated after the COVID-19 pandemic, and developed a coherent but comparatively narrow intellectual core. The following sections interpret these findings in relation to the research questions and to the existing literature.

Growth and Consolidation of the Field

The tenfold increase in annual output, from 27 documents in 2010 to a peak of 280 in 2021, mirrors the wider diffusion of digital mental health services and the transition of internet-based treatment from an experimental niche into an established mode of service delivery (Andersson et al., 2019; Barak et al., 2008). The acceleration observed between 2016 and 2021 is closely associated with the COVID-19 pandemic, which compelled services to move online within a very short period and reshaped practitioners' attitudes toward remote work (Békés & Aafjes-van Doorn, 2020). The subsequent plateau, with annual production stabilizing between 256 and 272 documents, should not be interpreted as a loss of momentum. In maturing research areas, growth in publication volume typically decelerates while the research agenda diversifies, and the shift from initial feasibility studies toward larger comparative trials and individual patient data meta-analyses (Karyotaki et al., 2017, 2021) is consistent with such a maturation. The declining mean citation counts per document are largely an artifact of the citation window: recent publications have had less time to accumulate citations, and the figures for 2026 are further affected by the partial coverage of that year.

Productivity, Concentration, and Influence

Performance analysis revealed a markedly concentrated field. A small number of authors, institutions, and sources account for a disproportionate share of the output, and the leading positions are occupied by the Scandinavian and Australian research groups that pioneered randomized evaluations of internet-based cognitive behavioral therapy (Andersson & Titov, 2014): Andersson, G., Titov, N., and Carlbring, P. alone contributed 215, 100, and 86 documents respectively, while Karolinska Institutet, Linköping University, and Vrije Universiteit Amsterdam were the most productive institutions. The prominence of the *Journal of Medical Internet Research* and its sister journals, which account for four of the ten most productive sources, is particularly informative: the field's most visible work is published in e-health and medical informatics venues rather than in counseling psychology journals. This finding has two implications. First, counseling researchers who wish to reach the field's central audience need to engage with these interdisciplinary outlets and their methodological conventions. Second, the concentration of publication in a limited set of largely e-health and medical informatics journals, combined with the dominance of a small number of author teams, suggests that the theoretical and methodological diversity of the field may be narrower than its volume implies. At the same time, the Netherlands recorded the highest average citation impact (CPP = 59.0) despite ranking only seventh in output, indicating that smaller and highly networked research systems can achieve disproportionate influence.

Collaboration Patterns

Approximately three in ten documents (29.5%) were internationally co-authored, and the proportion of cross-national collaboration was highest in Switzerland and Denmark (76% each) and lowest among the largest producers, such as the United States (32%). These differences partly reflect the size of domestic research systems and the availability of national funding, but they also highlight an important structural feature of the

field: the most internationally connected countries were also among those with the highest average citation impact. This association should be interpreted with caution, because internationally co-authored documents often involve larger, better-resourced teams publishing in higher-visibility journals; nevertheless, the pattern reinforces the value of cross-national consortia for a field whose object of study, technology-mediated service delivery, is inherently border-crossing.

The Citation Landscape and the Engagement Bottleneck

The most cited document in the corpus is not a trial of treatment efficacy but a systematic review of persuasive system design and adherence (Kelders et al., 2012). The presence of Melville, Casey, and Kavanagh (2010) on dropout among the ten most cited documents, together with the several hundred citations accumulated by a meta-analysis of dropout predictors (Karyotaki et al., 2015), points in the same direction: engagement and attrition, rather than the basic question of whether online treatment can work, constitute the field's central bottleneck. This is consistent with evidence that guided interventions with human support tend to produce better outcomes than fully self-guided ones (Andersson et al., 2019; Karyotaki et al., 2017), and it suggests that research on adherence, personalization, and the dose-response relationship of human support remains a high-value direction. The distribution of citations is highly skewed, with the ten most cited documents accounting for 9.3% of all citations while 264 documents (9.7%) remain uncited; such skew is typical of bibliometric distributions (Donthu et al., 2021), but it also indicates a long tail of contributions that have not yet entered the field's visible knowledge base.

Intellectual Structure and Emerging Themes

The co-word analysis identified two motor themes that define the core of the field: the evaluation of internet-based cognitive behavioral therapy for depression and anxiety, and the randomized evidence base that supports it (Andersson et al., 2014; Barak et al., 2008; Carlbring et al., 2018). Telehealth and telemental health service delivery emerged as a basic and transversal theme, central to the network but less internally cohesive, which is consistent with its rapid and uneven expansion after 2020, when remote provision became mainstream (Backhaus et al., 2012; Hilty et al., 2013). Internet-based treatment for specific disorders and populations formed a niche theme, while digital interventions for children and adolescents, and the synthesis of evidence through systematic reviews and meta-analyses, occupied the peripheral quadrant of the map.

The emerging themes are equally informative. COVID-19, digital mental health, teletherapy, and digital health appear almost exclusively in publications from 2020 onwards, confirming that the pandemic and the subsequent normalization of remote care have changed both the vocabulary and the research agenda of the field. The most rapid change, however, concerns artificial intelligence and machine learning, which grew from isolated mentions before 2020 to a small but rapidly expanding strand, with 13 and 10 documents, respectively, in the 2023–2026 period. Conversational agents and chatbots are now being evaluated both as adherence supports within guided interventions (Suganuma, Sakamoto, & Shimoyama, 2018; Yasukawa et al., 2024) and as tools for training communication skills (Shorey et al., 2019).

A notable absence in this structure is equally revealing. The therapeutic relationship, repeatedly identified as a key ingredient of e-therapy (Sucala et al., 2012), does not emerge as a distinct cluster in the keyword network. Relational and process-oriented research therefore appears to be a comparatively marginal strand in a field dominated by outcome and technology variables, a gap that becomes more consequential as automated and partially automated services begin to displace some of the human presence on which the therapeutic relationship depends.

Implications for Counselor Education and Practice

The results carry direct implications for the training of psychological counselors. If online delivery has become a mainstream rather than an exceptional mode of practice, digital competences can no longer be treated as optional additions to the curriculum. Programs should systematically address technology-mediated relationship building, remote risk assessment and crisis management, the ethical and legal issues specific to online work, and the supervision of trainees who deliver services remotely (Aafjes-van Doorn, Békés, Stukenberg, & Roberts, 2024; Richards & Viganò, 2013).

The rise of artificial intelligence adds a further requirement. Counselors are increasingly likely to work alongside chatbots, self-guided programs, and algorithmic triage tools, and they will need the critical literacy to judge when such tools support rather than substitute for clinical judgment (Shorey et al., 2019; Suganuma et al., 2018). Practitioners and professional bodies also face structural questions concerning reimbursement, cross-jurisdictional licensure, and equity of access, since the digital divide continues to exclude groups who might benefit most from remote services (Patel et al., 2018; World Health Organization, 2022).

For researchers, three priorities follow from the present analysis: broadening the evidence base beyond the depression-anxiety internet-based cognitive behavioral therapy core to include relational processes, blended models, and under-represented populations; conducting trials of artificial intelligence-supported interventions with the same methodological rigor that characterizes the current randomized literature; and reporting engagement outcomes alongside symptom outcomes, given that adherence remains the field's most frequently cited concern.

Conclusion and Recommendations

This study mapped 2,733 documents published between 2010 and 2026 and showed that online psychological counseling has developed from a marginal research interest into a substantial and internationally connected field. Output grew approximately tenfold before stabilizing after 2021; the knowledge base is organized around internet-based cognitive behavioral therapy for depression and anxiety; and a small number of authors, institutions, and journals exert disproportionate influence. The most cited contributions address adherence and dropout rather than efficacy, and the most recent growth is driven by teletherapy, digital mental health, and artificial intelligence.

On this basis, several recommendations follow. Researchers should diversify the field's thematic base, attend more closely to relational and process variables, and evaluate artificial intelligence-supported services with rigorous designs. Counselor educators should embed digital

competences, including remote crisis management, online supervision, and the critical appraisal of automated tools, within accredited curricula rather than treating them as elective content. Professional bodies and policymakers should address reimbursement models, cross-border licensure, and equitable access, and should support the international collaboration that is associated with the field's most influential work.

Limitations

Several limitations qualify these findings. First, the analysis relied exclusively on the Web of Science Core Collection. Although this database offers selective coverage of high-impact journals, relevant work indexed only in Scopus, PubMed, or regional databases is not represented, and the choice of database therefore shapes both the corpus and the resulting maps (Donthu et al., 2021). Second, the search was restricted to English-language publications, which excludes research published in other languages and introduces an anglophone bias. Third, restricting the corpus to four Web of Science categories and to articles and review articles increased topical precision but excluded conference proceedings, book chapters, and other document types in which early or applied work is often reported.

Fourth, citation-based indicators are time-dependent. Documents published recently have had less opportunity to accumulate citations, so comparisons of citation impact across cohorts should be interpreted with caution, and field-normalized or time-normalized indicators were not applied. Fifth, author and institution names were used as recorded in the database, and homonyms, name variants, and differences in institutional spelling may have affected the productivity rankings. Sixth, the thematic structure derived from co-word analysis depends on the keywords assigned by authors, and 6.5% of the documents in the corpus lacked author keywords, so the stability of the clusters should be treated as indicative rather than definitive. Seventh, because the search required the core technology-mediated delivery terms to appear in the title, studies labeled exclusively with alternative terms (for example, smartphone app or chatbot) may have been missed, and newer applications such as artificial intelligence-based tools may therefore be underrepresented. Finally, the total link strengths reported for the keywords correspond to raw co-occurrence weights rather than to normalized link strengths, and the corpus reflects the state of the database at the time of the search (October 2026), with 2026 necessarily incomplete. Despite these limitations, the combination of performance analysis and science mapping provides a transparent and reproducible account of how the field has developed.

Declarations

Ethics Approval: Ethical approval was not required for this study as it is based exclusively on publicly available secondary bibliographic records retrieved from the Web of Science Core Collection.

Conflict of Interest: The author declares no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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Data Availability: The bibliographic dataset analyzed in this study can be replicated through the Web of Science Core Collection using the search query provided in the Method section.

References

- Aafjes-van Doorn, K., Békés, V., Stukenberg, K. W., & Roberts, K. E. (2024). Therapists' views and recommendations on the ins and outs of practicing teletherapy. *Counselling Psychology Quarterly*, 37(3), 398–418. <https://doi.org/10.1080/09515070.2023.2227133>
- Andersson, G., Cuijpers, P., Carlbring, P., Riper, H., & Hedman, E. (2014). Guided Internet-based vs. face-to-face cognitive behavior therapy for psychiatric and somatic disorders: A systematic review and meta-analysis. *World Psychiatry*, 13(3), 288–295. <https://doi.org/10.1002/wps.20151>
- Andersson, G., & Titov, N. (2014). Advantages and limitations of Internet-based interventions for common mental disorders. *World Psychiatry*, 13(1), 4–11. <https://doi.org/10.1002/wps.20083>
- Andersson, G., Titov, N., Dear, B. F., Rozental, A., & Carlbring, P. (2019). Internet-delivered psychological treatments: From innovation to implementation. *World Psychiatry*, 18(1), 20–28. <https://doi.org/10.1002/wps.20610>
- 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>
- Backhaus, A., Agha, Z., Maglione, M. L., Repp, A., Ross, B., Zuest, D., . . . Thorp, S. R. (2012). Videoconferencing psychotherapy: A systematic review. *Psychological Services*, 9(2), 111–131. <https://doi.org/10.1037/a0027924>
- Barak, A., Hen, L., Boniel-Nissim, M., & Shapira, N. (2008). A comprehensive review and a meta-analysis of the effectiveness of internet-based psychotherapeutic interventions. *Journal of Technology in Human Services*, 26(2–4), 109–160. <https://doi.org/10.1080/15228830802094429>
- Barak, A., Klein, B., & Proudfoot, J. G. (2009). Defining internet-supported therapeutic interventions. *Annals of Behavioral Medicine*, 38(1), 4–17. <https://doi.org/10.1007/s12160-009-9130-7>
- Békés, V., & Aafjes-van Doorn, K. (2020). Psychotherapists' attitudes toward online therapy during the COVID-19 pandemic. *Journal of Psychotherapy Integration*, 30(2), 238–247. <https://doi.org/10.1037/int0000214>
- Callon, M., Courtial, J. P., & Laville, F. (1991). Co-word analysis as a tool for describing the network of interactions between basic and technological research: The case of polymer chemistry. *Scientometrics*, 22(1), 155–205. <https://doi.org/10.1007/BF02019280>
- Carlbring, P., Andersson, G., Cuijpers, P., Riper, H., & Hedman-Lagerlöf, E. (2018). Internet-based vs. face-to-face cognitive behavior therapy for psychiatric and somatic disorders: An updated systematic review

- and meta-analysis. *Cognitive Behaviour Therapy*, 47(1), 1–18.
<https://doi.org/10.1080/16506073.2017.1401115>
- 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>
- Dowling, M., & Rickwood, D. (2013). Online counseling and therapy for mental health problems: A systematic review of individual synchronous interventions using chat. *Journal of Technology in Human Services*, 31(1), 1–21.
<https://doi.org/10.1080/15228835.2012.728508>
- Hilty, D. M., Ferrer, D. C., Parish, M. B., Johnston, B., Callahan, E. J., & Yellowlees, P. M. (2013). The effectiveness of telemental health: A 2013 review. *Telemedicine and e-Health*, 19(6), 444–454.
<https://doi.org/10.1089/tmj.2013.0075>
- Karyotaki, E., Efthimiou, O., Miguel, C., Maas genannt Bermpohl, F. M. G., Furukawa, T. A., Cuijpers, P., & Individual Patient Data Meta-Analyses for Depression (IPDMA-DE) Collaboration. (2021). Internet-based cognitive behavioral therapy for depression: A systematic review and individual patient data network meta-analysis. *JAMA Psychiatry*, 78(4), 361–371.
<https://doi.org/10.1001/jamapsychiatry.2020.4364>
- Karyotaki, E., Kleiboer, A., Smit, F., Turner, D. T., Pastor, A. M., Andersson, G., . . . Cuijpers, P. (2015). Predictors of treatment dropout in self-guided web-based interventions for depression: An 'individual patient data' meta-analysis. *Psychological Medicine*, 45(13), 2717–2726.
<https://doi.org/10.1017/S0033291715000665>
- Karyotaki, E., Riper, H., Twisk, J., Hoogendoorn, A., Kleiboer, A., Mira, A., . . . Cuijpers, P. (2017). Efficacy of self-guided internet-based cognitive behavioral therapy in the treatment of depressive symptoms: A meta-analysis of individual participant data. *JAMA Psychiatry*, 74(4), 351–359.
<https://doi.org/10.1001/jamapsychiatry.2017.0044>
- Kelders, S. M., Kok, R. N., Ossebaard, H. C., & Van Gemert-Pijnen, J. E. W. C. (2012). Persuasive system design does matter: A systematic review of adherence to web-based interventions. *Journal of Medical Internet Research*, 14(6), e152. <https://doi.org/10.2196/jmir.2104>
- Kessler, R. C., Berglund, P., Demler, O., Jin, R., Merikangas, K. R., & Walters, E. E. (2005). Lifetime prevalence and age-of-onset distributions of DSM-IV disorders in the National Comorbidity Survey Replication. *Archives of General Psychiatry*, 62(6), 593–602.
<https://doi.org/10.1001/archpsyc.62.6.593>
- Melville, K. M., Casey, L. M., & Kavanagh, D. J. (2010). Dropout from Internet-based treatment for psychological disorders. *British Journal of Clinical Psychology*, 49(4), 455–471.
<https://doi.org/10.1348/014466509X472138>
- Patel, V., Saxena, S., Lund, C., Thornicroft, G., Baingana, F., Bolton, P., . . . Unützer, J. (2018). The Lancet Commission on global mental

- health and sustainable development. *The Lancet*, 392(10157), 1553–1598. [https://doi.org/10.1016/S0140-6736\(18\)31612-X](https://doi.org/10.1016/S0140-6736(18)31612-X)
- Richards, D., & Viganò, N. (2013). Online counseling: A narrative and critical review of the literature. *Journal of Clinical Psychology*, 69(9), 994–1011. <https://doi.org/10.1002/jclp.21974>
- Rochlen, A. B., Zack, J. S., & Speyer, C. (2004). Online therapy: Review of relevant definitions, debates, and current empirical support. *Journal of Clinical Psychology*, 60(3), 269–283. <https://doi.org/10.1002/jclp.10263>
- Shorey, S., Ang, E., Yap, J., Ng, E. D., Lau, S. T., & Chui, C. K. (2019). A virtual counseling application using artificial intelligence for communication skills training in nursing education: Development study. *Journal of Medical Internet Research*, 21(10), e14658. <https://doi.org/10.2196/14658>
- Sucala, M., Schnur, J. B., Constantino, M. J., Miller, S. J., Brackman, E. H., & Montgomery, G. H. (2012). The therapeutic relationship in e-therapy for mental health: A systematic review. *Journal of Medical Internet Research*, 14(4), e110. <https://doi.org/10.2196/jmir.2084>
- Suganuma, S., Sakamoto, D., & Shimoyama, H. (2018). An embodied conversational agent for unguided internet-based cognitive behavior therapy in preventative mental health: Feasibility and acceptability pilot trial. *JMIR Mental Health*, 5(3), e10454. <https://doi.org/10.2196/10454>
- van Eck, N. J., & Waltman, L. (2010). Software survey: VOSviewer, a computer program for bibliometric mapping. *Scientometrics*, 84(2), 523–538. <https://doi.org/10.1007/s11192-009-0146-3>
- World Health Organization. (2022). *World mental health report: Transforming mental health for all*. Geneva, Switzerland: Author.
- Yasukawa, S., Tanaka, T., Yamane, K., Kano, R., Sakata, M., Noma, H., . . . Kishimoto, T. (2024). A chatbot to improve adherence to internet-based cognitive-behavioral therapy among workers with subthreshold depression: A randomised controlled trial. *BMJ Mental Health*, 27(1), e300881. <https://doi.org/10.1136/bmjment-2023-300881>
- Zupic, I., & Čater, T. (2015). Bibliometric methods in management and organization. *Organizational Research Methods*, 18(3), 429–472. <https://doi.org/10.1177/1094428114562629>