

# Εκπαίδευση, Δια Βίου Μάθηση, Έρευνα και Τεχνολογική Ανάπτυξη, Καινοτομία και Οικονομία

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## Student career counseling: A bibliometric review (1985-2022)

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# Student career counseling: A bibliometric review (1985-2022)

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## Περίληψη

Η συμβουλευτική σταδιοδρομίας αποτελεί μία διαδικασία που βοηθά τα άτομα να αναγνωρίσουν και να εξερευνήσουν επαγγελματικές επιλογές, να λάβουν ενημερωμένες αποφάσεις για το μέλλον τους, και να αναπτύξουν στρατηγικές για την επιλογή της κατάλληλης σταδιοδρομίας. Βοηθά, επίσης, στην ενίσχυση της ακαδημαϊκής εμπειρίας των φοιτητών/τριών προσφέροντάς τους την ευκαιρία να εφαρμόσουν τις γνώσεις τους σε ένα προ-επαγγελματικό περιβάλλον εργασίας, αναγνωρίζοντας τα εμπόδια και τις απαιτήσεις στη σταδιοδρομία τους. Επομένως, υπάρχει μια αυξανόμενη αναγνώριση της σημασίας της διεξαγωγής έρευνας στην ανάπτυξη της συμβουλευτικής στη ζωή των φοιτητών/τριών. Αυτή η μελέτη προσεγγίζει τη συλλογή δημοσιεύσεων που σχετίζονται με τη συμβουλευτική σταδιοδρομίας για φοιτητές/τριες επιλέγοντας και αναλύοντας το εκτενές σώμα επιστημονικών δημοσιεύσεων που εμφανίστηκε τα τελευταία 37 χρόνια (1985-2022) στην βάση δεδομένων Elsevier Scopus. Αυτή η μελέτη βασίζεται στο θεωρητικό πλαίσιο της βιβλιομετρικής ανάλυσης, που στοχεύει στην εξέταση της βιβλιογραφίας του συγκεκριμένου τομέα από ποσοτική άποψη με την εξέταση κορυφαίων ιδρυμάτων, χωρών, συγγραφέων και δημοσιεύσεων. Ταυτόχρονα, αυτή η μελέτη αποκαλύπτει τα κύρια θέματα και τις κατευθύνσεις της έρευνας στον τομέα της συμβουλευτικής σταδιοδρομίας για φοιτητές/τριες. Τέλος, συζητούνται τα κύρια ευρήματα και οι περιορισμοί της μελέτης και τονίζονται πιθανές μελλοντικές κατευθύνσεις της επιστημονικής έρευνας.

**Λέξεις κλειδιά:** Συμβουλευτική Σταδιοδρομίας, Επαγγελματική Ανάπτυξη, Φοιτητές, Βιβλιομετρική Ανάλυση.

## Abstract

Career counseling is a process that helps individuals identify and explore career options, make informed decisions about their future, and develop strategies for choosing a suitable career path. It also helps students enhance their academic experience by providing them with the opportunity to apply the theoretical learning acquired in the classroom in a pre-professional work environment, and to recognize

the hurdles and requirements in their career path. Hence, there is a growing recognition of the importance of undertaking research into the development of counseling in students' lives. This study approaches—from a general perspective—the collection of publications related to career counseling for students by selecting and analyzing the extensive corpus of publications that appeared in the last 37 years (1985–2022) on Elsevier Scopus. This study relies on the theoretical framework of bibliometric analysis, which aims at investigating the literature of the given domain from a quantitative point of view by examining leading institutions and countries, influential authors, and papers. At the same time, this study reveals the main topics and research directions in the field of career counseling. The main findings and limitations of the study are discussed, and possible future research directions are also highlighted.

**Keywords:** Career Counseling, Professional Development, Students, Meta-analysis, Bibliometric Data Analysis.

## 1. Introduction

Over the last few decades, there has been an abundance of literature on student career development and career guidance and counseling (Feller, 2003; Hargrove et al., 2005; Hughes & Karp, 2004; Powell & Luzzo, 1998; Whiston & Sexton, 1998). Career counseling and guidance gained in importance due to the new technologies and the rapid changes in the world of work (OECD, 2004).

Numerous studies and surveys have been conducted to investigate the effects of career guidance and counseling programs on various groups of population. It can be noted that much of the research on career counseling focuses on adolescents in high school (Cardoso et al., 2017; Santilli et al., 2019). Furthermore, recent research shows that career counseling with graduating college students expands their career adaptability resources and their perception of professional development and employability (Carvalho, Mourão & Freitas, 2023). Moreover, recent research focuses on the improvement of the employability of disadvantaged young adults and adults with disabilities (Dispenza, 2021; Maree et al., 2019). Thus, it can be understood from a first global review of the literature that career counseling is a path from school and university life to work life.

Except for the above-mentioned sectors, there is plenty of literature about the global trends regarding career education, the development of soft skills, and general directions and perspectives (Balin, 2022). The importance of the development of soft skills, like creativity, innovation, flexibility, openness to

change, communication skills, and management skills, is also highlighted, as they play a central role in making students employable (Chakraborty, 2009).

Hughes et al. (2004) find that many benefits for the students derived from career guidance and academic counseling interventions examining the value of comprehensive guidance programs, career courses, counseling interventions and computer-assisted career guidance. Moreover, Yates & Bruce (2017) examine the importance of career education in the school system of New Zealand. A recent review of the literature, using Vosviewer and Biblioshiny, examines the term "career education" in the Web of Science (WoS) database between the years 2018 and 2021. The bibliometric analysis results indicate the trends of career education as data extracted from the Web of Science database. In terms of selective content analysis on highly cited articles, the authors discuss the trends of career education in higher education, in schools, in adult education, and the impact of the Covid-19 pandemic (Qiang, Cheah & Xuanfang, 2022).

However, as it has been shown from the literature review, there are sectors that, as of today, have not been researched. Specifically, there is lack of a longitudinal study that examines the bibliometric data of an extensive number of publications regarding career counseling for students. Utilizing bibliometric approaches enables scholars to ground their conclusions on compiled bibliographic information generated by other researchers in the discipline, who communicate their viewpoints through citations, collaborative efforts, and written works (Zupic & Carter, 2015, p. 430). Hence, this study investigates a collection of 184 articles and papers authored between 1985 and 2022 about career counseling. The analysis is conducted using the "bibliometrix" package and "biblioshiny" for bibliometric analysis. Bitzenis and his co-researchers (2023) employed a comparable research methodology within the domain of Business and Economics.

## **2. Methodology**

A keyword search has been conducted using the following relevant keywords on the Elsevier Scopus research database:

*(TITLE-ABS-KEY ( ( counselling OR counseling OR advocacy ) AND ( ( developing OR development OR advancement ) AND ( career OR professional OR job OR occupation ) ) AND ( student ) ) AND NOT TITLE-ABS-KEY ( clinical OR trauma OR medical OR mental OR disease OR therapy OR rehabilitation ) ) AND ( EXCLUDE ( SUBJAREA , "PSYC" ) OR*

*EXCLUDE ( SUBJAREA , "MEDI" ) OR EXCLUDE ( SUBJAREA , "NURS" ) OR EXCLUDE ( SUBJAREA , "PHAR" ) OR EXCLUDE ( SUBJAREA , "HEAL" ) OR EXCLUDE ( SUBJAREA , "BIOC" ) OR EXCLUDE ( SUBJAREA , "IMMU" ) OR EXCLUDE ( SUBJAREA , "VETE" ) )*

Scopus is a database with a great number of full-text sources that is easy to navigate through (Burnham, J.F. 2006), and it is fully compatible with our research tool, "Bibliometrix" (Aria & Cuccurullo, 2017). The search initially produced 426 articles from 1985 to 2022, which have been filtered. The selected timespan was chosen due to the availability of more comprehensive and secure data for visual representations that can be extracted by this period. Articles focusing on counselors' training and further development, along with articles related to medical or psychological counseling, and rehabilitation counseling, have been excluded. The filtering process examined the abstracts, keywords, and titles of the articles. Finally, 184 articles have been selected and used for this bibliometric analysis. The 184 articles have been imported in the bibliometric tool "bibliometrix" R-package to extract the main data, and the Biblioshiny app was used for the visual representation of the data in order to proceed to further analysis and data interpretation. The analysis was conducted using version 4.1 of Bibliometrix, and the investigation considered the completeness of bibliographic metadata based on the automatically extracted missing data table report.

### **3. Results**

Our data consist of 184 articles, books, and scientific publications from 146 sources published from 1985 to 2022. The total number of authors is 477. Although, the dataset contains 42 single-authored documents and shows an average of 2 authors per document, the percentage of international co-authorships is relatively low at 5.98%. The dataset comprises a variety of document types, such as articles, books, book chapters, conference papers, and reviews.

Table 1 shows all the descriptive statistics of our data, the main information such as the total of the files, the time span and the average of the bibliographic references, the documents type, the contents, data about the authors and their collaborations.

**Table 1: Main Information about data.**

Description	Results
<b>MAIN INFORMATION ABOUT DATA</b>	
Timespan	1985:2022
Sources (Journals, Books, etc)	146
Documents	184
Annual Growth Rate (%)	7,56
Document Average Age	7,31
Average citations per doc	4,93
References	1
<b>DOCUMENT CONTENTS</b>	
Keywords Plus (ID)	396
Author's Keywords (DE)	562
<b>AUTHORS</b>	
Authors	477
Authors of single-authored docs	42
<b>AUTHORS COLLABORATION</b>	
Single-authored docs	43
Co-Authors per Doc	2,67
International co-authorships (%)	5,98
<b>DOCUMENT TYPES</b>	
article	125
book	10
book chapter	16
conference paper	28
review	5

Figure 1 illustrates the production of articles on student career counseling per year. In particular, during the period from 1985 to 2000 it was consistently low. The increase in scientific production started in 2000. From 1985 to 1999 only 8 publications appeared. The years from 2000 to 2005 were more productive, with 15 articles. The number of articles increased to 83 from 2005 to 2015 and most publications appeared from 2015 to 2022, with a total of 112 articles.

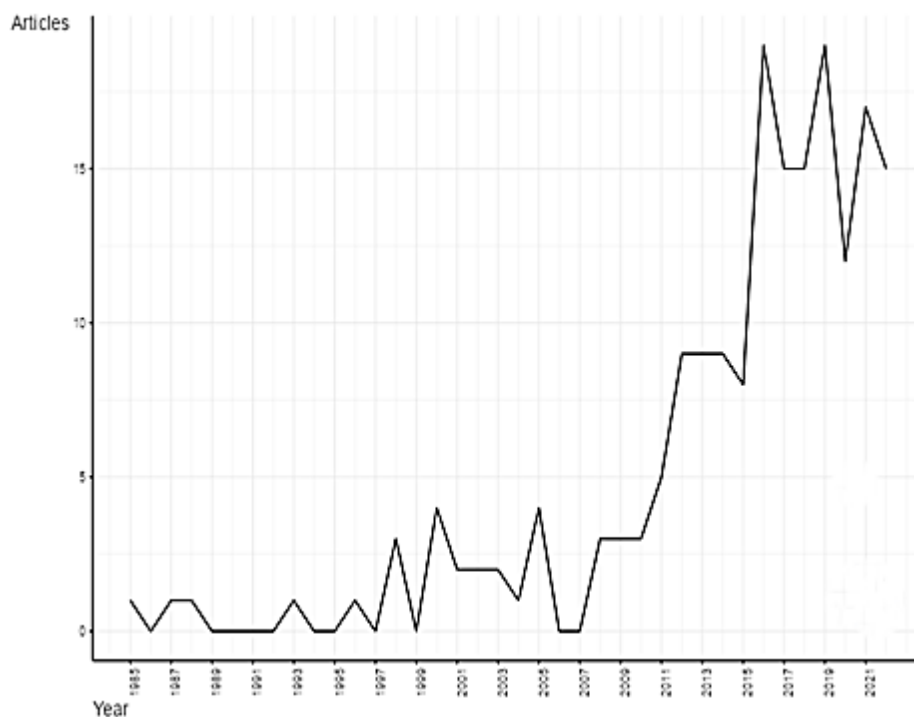


Fig. 1. Annual Scientific Production.

Our data comes from 60 sources in total. Most of the publications on student career counseling come from the “*Proceedings of the Annual Conference of the American Community for Engineering Education*”, as well as from the “*Journal of Chemical Education*”. Notably, other influential sources include the journal “*Sustainability*”, the “*eLearning and Software for Education Conference*”, and the “*Journal of Technology in Counseling*” (Fig. 2).

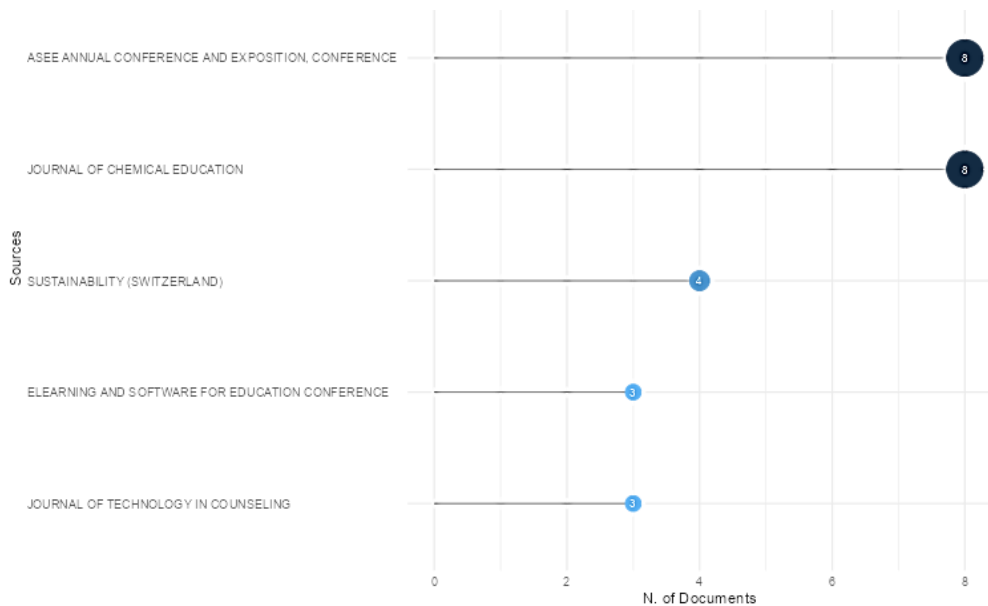


Fig. 2. Most Relevant Sources.

The USA is the country with the biggest contribution to this subject with 183 publications. Romania is second with 28 publications. China, Spain and India follow with 26, 20 and 19 publications, respectively (Fig. 3).

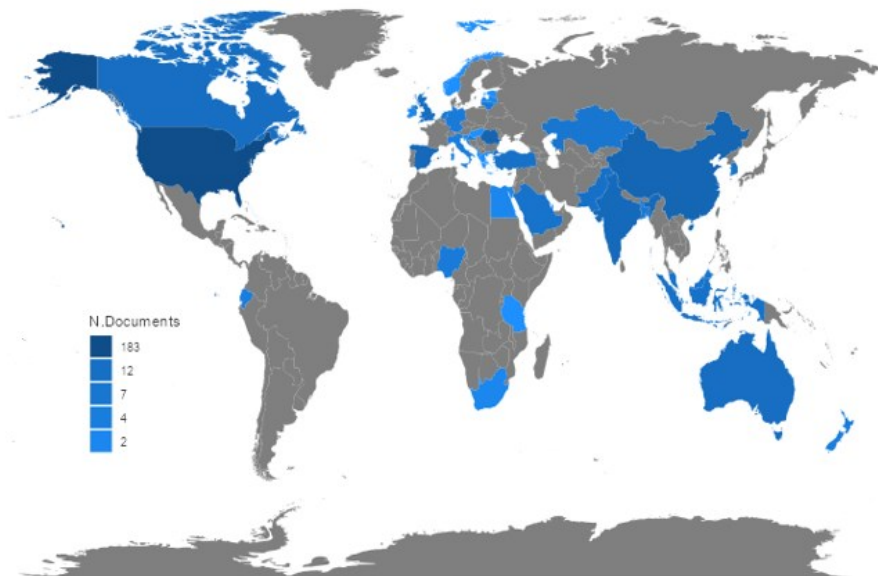


Fig. 3. Country Scientific Production



Publications with the highest number of references are depicted in Figure 4. More than 50 references point to two articles.

The first document is a study by Baek et al. (2019). Their study supports the convergence of the sciences of technology, humanities, and social sciences in engineering education, as this approach promotes a more broad and comprehensive education compared to a curriculum strictly geared to the development of technical skills. A holistic approach to education is preferred by the labor market because it improves productivity and generally prepares candidates for their working environment more effectively.

Second in influence is the article by Almalki et al. (2022), who examined the readiness of pharmacy students to get a job in Saudi Arabia, assessing the availability and provision of career counseling services and their potential impact on the development of their skills and professional choices. Although a significant proportion of students were aware of counseling services at their university, few of them said they had used these services. The authors stress that this could affect the readiness of students to enter the labor.

The third study focuses on the development and evaluation of an instructional program called Engineering & Computer Science Explorations III (ECSE III), which aimed at increasing the participation of minority students in engineering and computer science disciplines. The research investigates four critical areas within STEM and urban education: early access to fundamental concepts, curriculum tailored to students' learning styles, the use of peer and expert-model pedagogical agents, and consideration of sociocultural and gender issues. The study employs a mixed-method approach to assess the effectiveness of the ECSE III program, showing significant improvements in participants' aptitude and skills. The paper presents insights into participants' traits, expectations, experiences, and test score changes, with the goal of enhancing diversity and support for underrepresented students in engineering and computer science fields (Pickering-Reyna, 2009).

The next study that attracted more than 40 citations, explores the experiences of women pursuing distance education professional doctoral degrees while balancing their family of origin and current family system with their scholarly development. The research aims to understand how women stay focused on their doctoral programs despite the conflict between their identities as women and scholars. The study reveals that family plays a crucial role in supporting women's scholarly identity development and persistence in these programs. The findings emphasize the need for universities to involve families in the

doctoral studies journey by providing orientations, counseling, and other support mechanisms, recognizing the importance of family support in women's doctoral persistence and success (Rockinson-Szapkiw, Sosin & Spaulding, 2018).

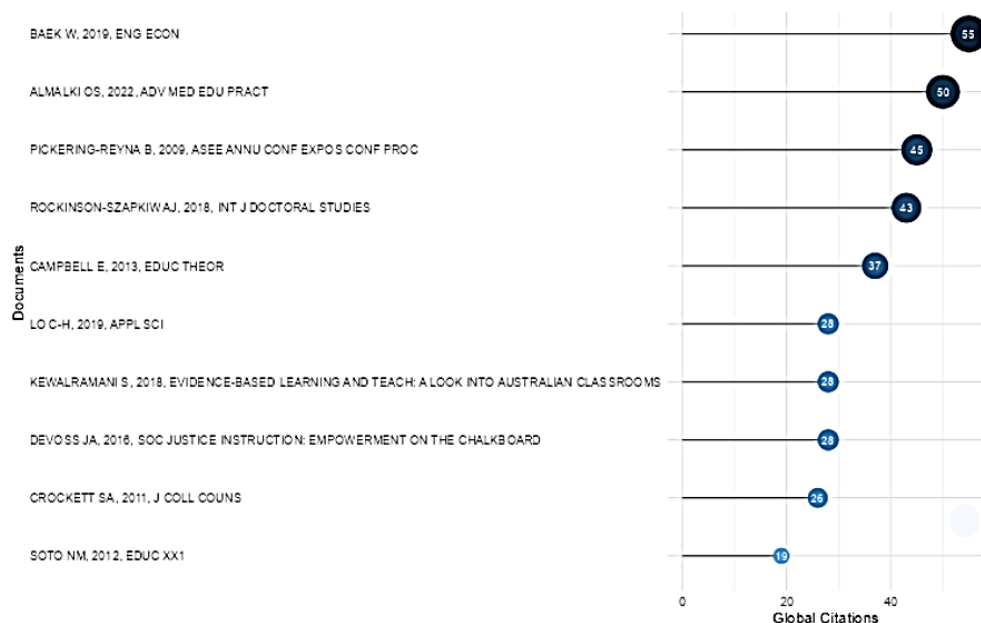


Fig. 4. Most Global Cited Documents.

Based on the authors' keywords, the term "career guidance services" appears to have the highest frequency, followed by "asean counselor education" with 8 occurrences and "American chemical society," "counselor education standards," "job search behavior," "professional identity development" and "professional school counselors" with 6 occurrences each (Fig. 5).

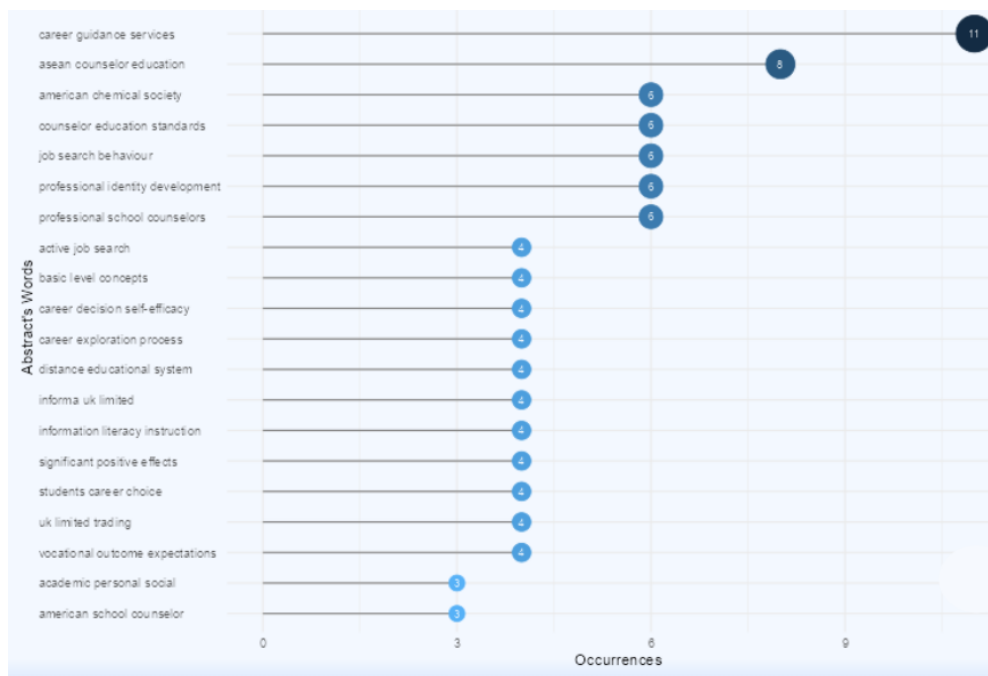


Fig. 5. Most Relevant Words

Utilizing the visual representation feature of the software that was used, keywords are typically displayed in a larger font size, allowing us to present our findings through a word cloud. Consequently, we observe that the term "professional consulting services," being the most recurrent, is prominently highlighted in the center with a larger font size. The terms "counselor education standards," "job search behavior," "professional identity development" and "professional school counselors" appear farther from the center, indicating that they are used less frequently in the selected articles (Fig. 6).

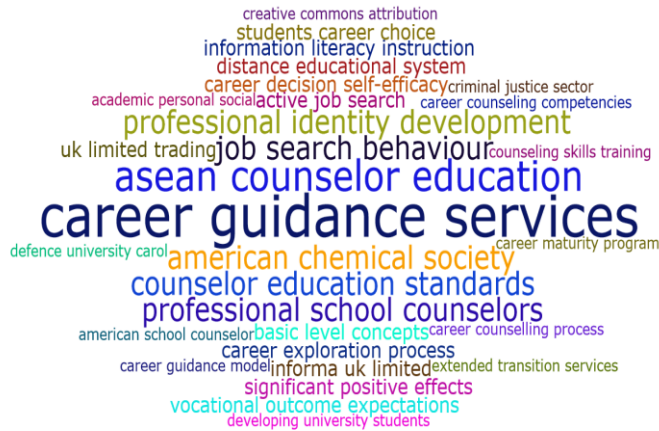


Fig. 6. Word Cloud

The most popular topic is the term "career guidance services" with a total of 11 appearances in the years 2019 and 2022. The term "job search behavior" appeared 6 times in 2015. The terms "asean counselor education" and "counselor education standards" appear only in 2020, with frequencies of 8 and 6 respectively. The terms "American chemical society" (in 2018 and 2021) and "professional school counselors" (in 2017 and 2021) also appeared 6 times. The term "professional identity development" appears over time, first in 2013 and then again in 2018 and 2020, with a total of 6 appearances (Fig. 7).

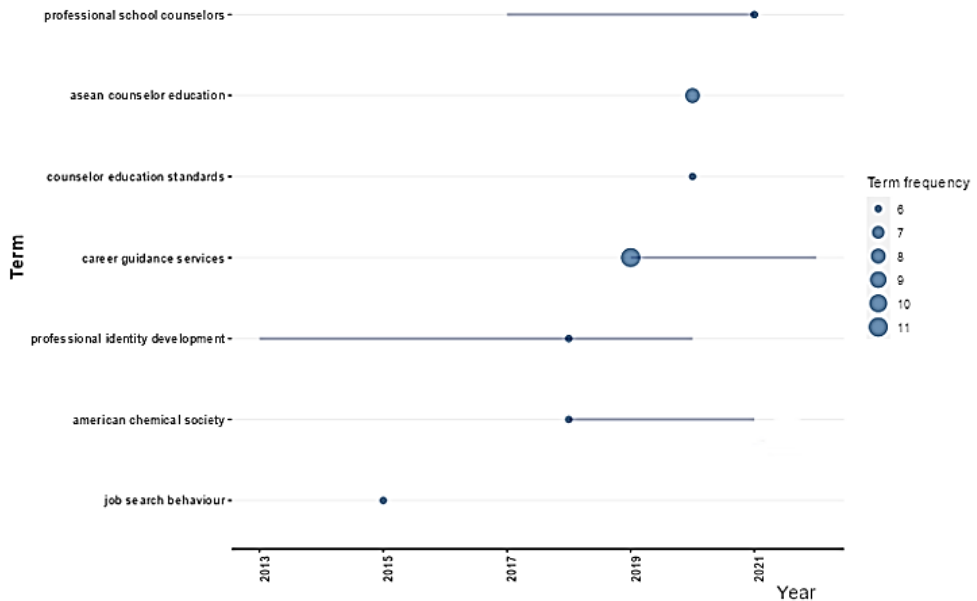


Fig. 7. Trend Topics

The analysis of the word network allows us to discover the relationships and interactions between the main terms of the subject under consideration. As shown in this diagram, the 49 most commonly occurring terms are divided into 5 clusters. The largest cluster is the one shown in green. The terms "career guidance", "career development" and "career counseling" have strong relationships with each other and are most likely to be linked to studies that include "school students", "college students", "students' career" and "career planning". The cluster represented in orange includes the terms "school counselors," "school counseling," "professional school," "social justice" and "counseling programs." The terms "counselor education", "graduate students", "information literacy" and "counseling services" are placed together in the blue color cluster. The terms "future research", "identity development", "professional identity" and "distance education" also appear to be associated. The last cluster (red) consists of the terms "professional development," "engineering education," "American society" and "university students" (Fig. 8).



Fig. 8. Co-word Network.

Among the authors appearing in Figure 9, Myla, Marella, Kumal, Inthiyaz have the highest cooperation rate and are depicted in the purple color. These authors are from the US and India. The second team with the most collaborations is depicted in yellow and includes Saudi Arabian university researchers. All other collaborations were carried out between only two authors. We can therefore notice that the level of cooperation between countries is quite low and could possibly increase. So, it would be useful to strengthen cooperation between researchers in this field, because global cooperation can contribute to the development of research, to broaden and deepen the knowledge of vocational counseling in education at global level.

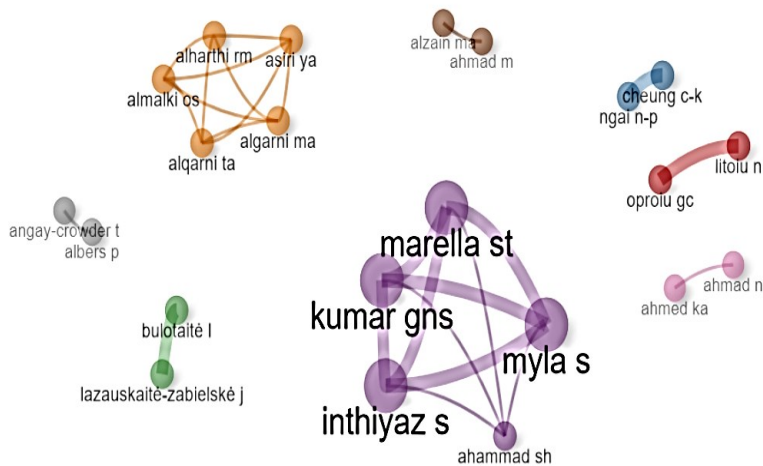


Fig. 9. Collaboration Network.

#### 4. Conclusions

The bibliometric research that was carried out in the academic texts referring to vocational counseling in students has shown that the interest has increased in recent years, and that professional counseling seems to be a necessary provision at a global level. Among the 184 articles examined, 112 were published between 2015 and 2022, indicating an increase in interest in professional counseling for students in recent years. Among these articles the term with the most appearances is “career guidance services”. Also, the terms “career guidance”, “career development” and “career counseling” appear to have a strong connection with the terms “college students”, “students’ career” and “career planning”. Except from the main terms the results highlight a minimal level of cooperation among researchers from different countries.

Therefore, this study provides a bibliometric review and analysis of the provision of career counseling to students. It also presents the main themes and trends of scientific literature, such as the importance of counseling and education to the increase in employability and the provision of interventions for life and career skills. The study also presents the authors, sources and most important terms, and shows the level of cooperation in the field that, although dynamic, may increase. Finally, this study updates the future research by showing the dominant trends in this particular field of research.

There are some limitations to this study that need to be noted. This study was conducted by looking for articles that have been published in English only. Additionally, only one database, Scopus, was used. More results may appear with the use of more databases. An additional limitation is that this study only focuses on education excluding certain areas, such as psychology.

In conclusion, this analysis provides useful information to researchers and professional consultancy experts who wish to specifically explore the intervention in the student population group in order to proceed to new field investigations, starting from the study of main trends.

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