

Development of Literature Academic Anxiety From 2002-2021: A Bibliometric Analysis Approach

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ABSTRACT

Bibliometric analysis is a statistical tool that is useful for visualizing developments in the field of science to be used as a tool in finding research gaps. This study aims to create a visualization map on the topic of academic anxiety research which includes the development of keywords and popular authors. The database in this study was obtained from dimensions.ai and took data from 2002 to 2021 which was then divided into two ten-year periods. The results of the bibliometric analysis from 2002-2011 contained 6 clusters and 66 keyword items and citation authors with 26 clusters and 59 items. Meanwhile, the results of the bibliometric analysis of the database from 2012-2021 contained 66 items and 8 clusters for popular keywords, while 21 items and 11 clusters for citation authors.

Keyword: *Academic Anxiety; Bibliometric Analysis; VosViewer*

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1. INTRODUCTION

The mental health of students is an important factor for them to be able to carry out optimal learning. Not a few students who experience psychological disorders that can affect students' social, cognitive and affective activities. The condition in which students experience feelings of worry/anxiety in doing something caused by uncertainty about the results that will occur later is called anxiety. Students who experience feelings of excessive anxiety can have a negative impact on their learning activities, such as affecting learning outcomes, learning achievement, learning motivation and even their own health.

Anxiety can also be defined as fear, tension, or anxiety characterized by fear or uncertainty about something whose cause is unknown to the individual himself. This may occur because of concerns about events that will occur in the future as well as due to emotional reactions regarding a choice or decision (Good, 1973). Academic anxiety is anxiety that occurs in the education/school environment including teachers in certain subjects and this causes students to feel uncomfortable or mentally depressed because they perceive a subject as negative.

Feelings of anxiety/anxiety can be accompanied by a variety of psychological symptoms such as a fast heart rate, increased breathing, and nervous tension. Anxiety is similar to fear in the sense that it involves a high level of arousal. Arousal is a state of alertness / alertness and readiness to act (VandenBos, 2007). This feeling of anxiety cannot be found a solution if it is not searched for what causes it. Students feel anxious sometimes when faced with problems related to their academic grades.

Among the many students' anxiety occurs at the time of the semester exam, they will think about the final score they will get when they finish the exam. Students' feelings of anxiety arise because they do not have the readiness and confidence in their ability to do academic assignments. This feeling of anxiety is a type of temporary anxiety / state anxiety. In addition, there is a type of anxiety that is chronic, causing students to respond with a pattern of anxiety even when conditions are not threatening, this is called trait anxiety.

Anxiety that occurs in students is classified into facilitating anxiety and debilitating anxiety. Facilitating anxiety is anxiety that will encourage students to do a positive activity, such as reading a book, or

doing assignments carefully with their colleagues. While debilitating anxiety is anxiety that will cause students' concentration and attention to learning material to be disturbed.

Some of the causes of students experiencing academic anxiety include being caused by the threat of physical violence that students may experience, concern about physical appearance, for example a body that is too fat or thin will cause some students to experience insecurity, frustration with school subjects that are considered difficult by students. , the many demands given by the teacher such as requiring students to understand various concepts in a short period of time, then related to class exams, when students do not prepare for the exam then students will feel worried about not being able to do the exam, while the last factor is regarding worries about the future, such as how to find a life after graduating from school.

Some studies say that academic anxiety does not all cause a negative impact on all students, in some students it is possible to be able to help maintain motivation,(Azhari et al., 2022), be responsible and also help others (DordiNejad et al., 2011). Normal levels of anxiety can encourage students to do something positive, for example determining the process or steps to achieve goals. And conversely, academic anxiety that is too high can cause obstacles in the student's learning process, if ignored and not handled it can cause students to procrastinate learning, even withdraw from socializing with their peers (Matto, & Nabi, 2012).

Feelings of anxiety / anxiety that occur in students continue to increase, especially during online learning during the COVID-19 pandemic. The online learning experience during the covid-19 pandemic is not effective and even creates new problems such as decreased learning motivation which has an impact on student academic achievement (Aghajani Liasi et al., 2021). Students' academic anxiety needs special attention by teachers at school and parents at home. Teachers and parents have a role to provide guidance to students and build confidence that they can do their best to achieve their academic achievements.

Quite a lot of research related to academic anxiety has been carried out, among the results of the research, it is stated that students' academic anxiety is influenced by parenting of children, because parents have roles as models, instructors, and reinforcers of certain behaviors carried out by children (Dornbusch et al., 2016). In addition, external environmental factors have a high enough impact on students' academic anxiety. This study aims to determine the development of research with the theme "Academic Anxiety" from 2002 to 2021 divided into two periods, namely from 2002-2011 and 2012-2021.

Analysis of developments in research with the topic of academic anxiety using bibliometric analysis, and analyzing keywords, popular authors and agency affiliations that have studied a lot on this topic. The results of this analysis are a way to find research gaps so that other researchers can make novelties after reading the results of this bibliometric analysis. The use of the dimensions.ai database in this study is one of the shortcomings in this study, however, by using the dimensions.ai database, it has indexed most of the reputable international journals. Future bibliometric research may be able to use databases with high quality journals such as WoS or Scopus.

2. RESEARCH METHOD/MATERIAL AND METHOD/LITERATURE REVIEW

2.1 Data source

The data used in this study comes from the dimensions.ai database which was taken from 2002 to 2021 regarding the theme of academic anxiety research. Data collection was divided into two periods, namely in 2002 to 2011 and data from 2012 to 2021. The search keyword using dimensions.ai was "academic anxiety". The data obtained from 2002 to 2012 were 2526 articles while the data from 2012 to 2021 were 2555 articles. The metadata that has been collected is then downloaded in excel format which will then be analyzed using VosViewer software.

2.2 Analytical tool

Data analysis using bibliometric analysis method using VosViewer software version 1.6.18. This tool was developed by Van Eck & Waltman, VosViewer is a computer program that has the ability to form a visualization map, explore a map of link nodes based on bibliographic data (van Eck & Waltman, 2017; Waltman et al., 2010). VOS stands for visualization of similarity, which is a mapping technique adopted by computer programs. In general, VosViewer creates a bibliometric mapping through the following three steps (van Eck & Waltman, 2010):

- The similarity matrix is calculated by normalizing the co-occurrence matrix, where the strength of the association is used as a measure of similarity. Thus, the s_{ij} similarity between two elements in the co-occurrence data, e.g., keyword, country, and author). Where c_{ij} displays the number of co-occurrences between elements I and j and $w_i w_j$ displays the number of occurrences or co-occurrence of elements I and j, respectively.

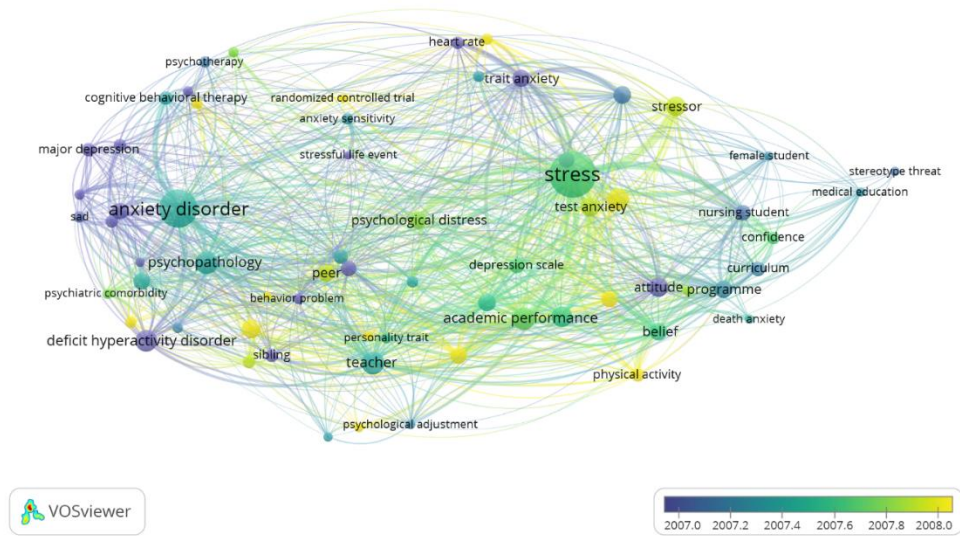


Fig 3. Overlay Visualization Academic Anxiety 2002-2011

Fig.3 shows the results of the overlay visualization, this analysis shows the development of research on the topic of academic anxiety from 2002-2011. Circles with dark colors indicate research keywords that have been studied for a long time, while circles with light colors indicate research trends and are widely studied in that year by researchers. While the large circle shows the number of studies on the research keywords and the small circle is a topic that has not been studied by many researchers. Furthermore, between these keywords there are lines that connect each other between keywords, this shows that there is a relationship between the fields in the research that has been carried out.

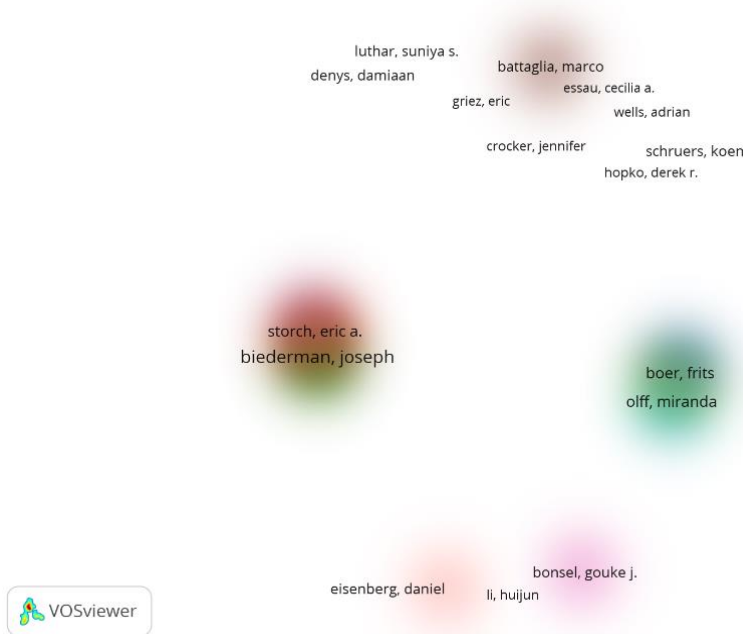


Fig 4. Citation view of authors Academic Anxiety 2002-2011

In fig.4 shows the results of the density visualization of the author's mapping which is widely cited. A large circle with a striking color indicates a heavily cited author. While the small circle with faded colors is an author who has not been cited much. In table 2 shows 10 authors who are widely cited including;

Table 2. 10 Authors with the most references in Academic Anxiety research topics 2002-2011

No	Authors	Cluster	Citation
1	Joseph Biederman	2	3897
2	John Piacentini	1	1255
3	Daniel Eisenberg	15	3592
4	Miranda Oloff	6	1165
5	Damiaans Denys	14	955
6	Jennifer Crocker	13	1304
7	Gehard Andersson	11	527
8	Johan Hoogstraten	4	848
9	Else De Haan	3	330
10	Gouke J.Bousel	9	524

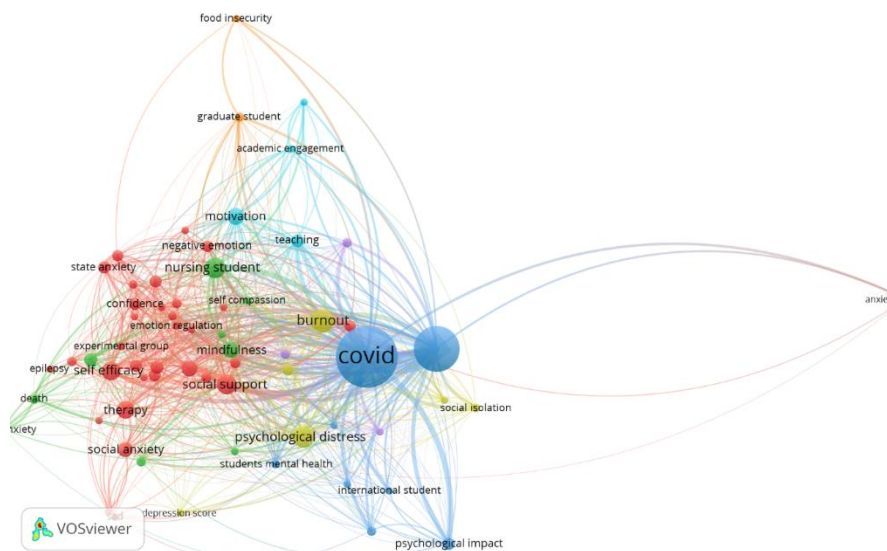


Fig 5. Network Visualization Academic Anxiety 2012-2021

Fig.5 shows the results of a bibliometric analysis on the theme of academic anxiety in 2012-2021. There are 8 clusters and 66 keyword items. Furthermore, it is categorized into the 10 largest keywords shown in table 3.

There is a significant change between research from 2002 to 2011 and research from 2012 to 2021, this is indicated by keywords on the topic of academic anxiety research which is heavily influenced by the covid-19 pandemic. During the COVID-19 pandemic, many students experienced academic anxiety, one of the causes was not having a resilient spirit when they encountered problems, therefore a resilient spirit must be formed so that students can continue to carry out learning in conditions of the COVID-19 pandemic (Elgendi et al., 2021; Jia et al., 2021). Teachers in schools have a role to provide emotional support to students where this is one of the things that will support students' academic achievement (Commodari & La Rosa, 2021; Fiorilli et al., 2020; Romano et al., 2020).

In addition, the cause of anxiety during learning during the COVID-19 pandemic was caused by problematic smartphone use (Hao et al., 2021). Students cannot carry out their learning activities if there are no adequate facilities for online learning. This anxiety occurs, for example, students worry that they will not be able to participate in learning, cannot do assignments, cannot communicate with peers or cannot access the internet to study. Furthermore, the role of social media occupies an important position in maintaining student learning motivation, where social media is a means to communicate and interact with peers as well as a means to eliminate boredom during online learning (Jiang, 2021).

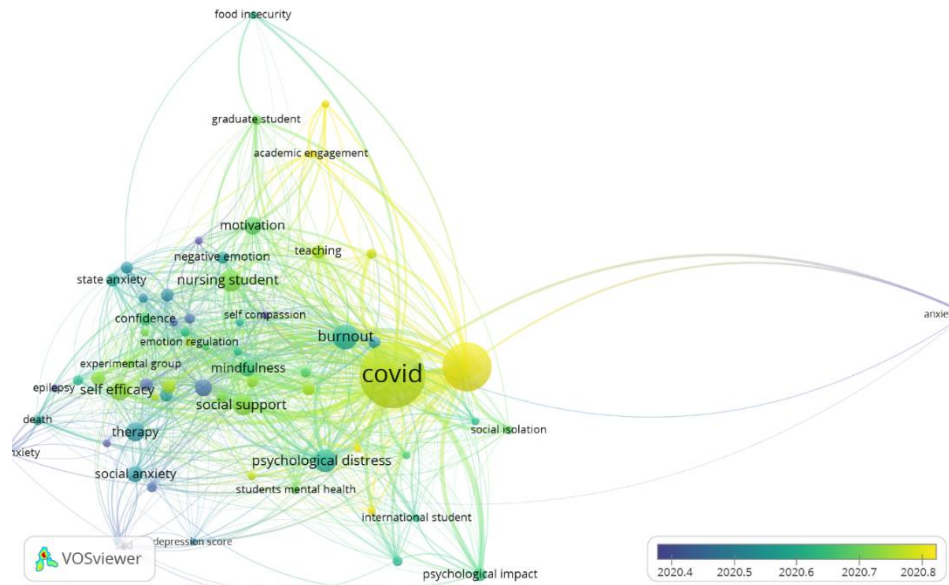


Fig 6. Overlay Visualization Academic Anxiety 2012-2021

Fig.6 shows the results of the overlay visualization, this analysis shows the development of research on the topic of academic anxiety from 2012-2021. Circles with dark colors indicate research keywords that have been studied for a long time, while circles with light colors indicate research trends and are widely studied in that year by researchers. While the large circle shows the number of studies on the research keywords and the small circle is a topic that has not been studied by many researchers. Furthermore, between these keywords there are lines that connect each other between keywords, this shows that there is a relationship between the fields in the research that has been carried out.

Some of the latest research topics based on fig.6 include social support, mental health service, happiness, emotion regulation, self-efficacy, self-esteem, academic engagement, and academic burnout. Among these research topics can be redeveloped to create novelty in research.

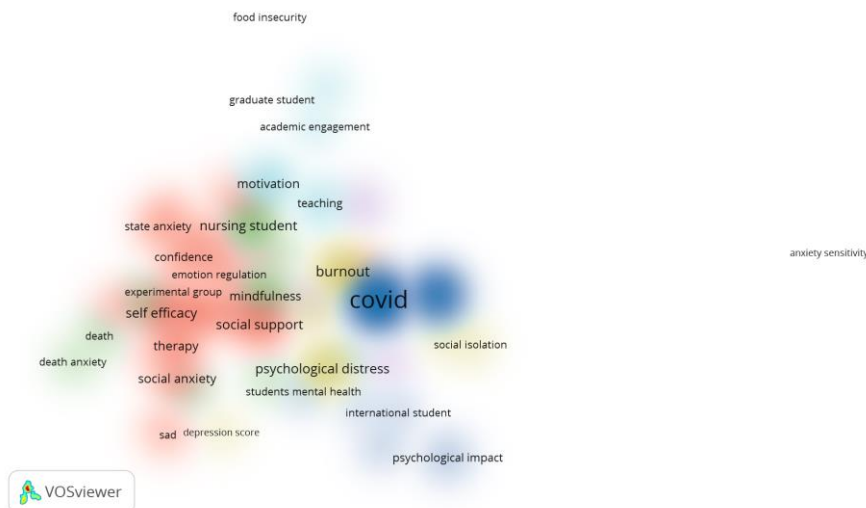


Fig 7. Density visualization Academic Anxiety 2012-2021

Fig.7 shows several key words that are the focus of academic researchers in studying the topic of academic anxiety research. Through density visualization can provide visualization results regarding the results of the most researched keywords. How to understand it by looking at the most striking color on the circle. The more striking the color, the more research studies on that keyword, and the fainter the color, the less research in that field. In table 3:

Table 3. 10 keywords for academic anxiety 2012-2021

No.	Item	Cluster	Occurrences
1	Covid	3	2621
2	Burnout	4	387
3	Psychological distress	4	335
4	social support	1	263
5	self-efficacy	1	239
6	motivation	6	195
7	teaching	6	116
8	psychological impact	3	101
9	academic stress	4	98
10	mindfulness	2	189

Research keywords regarding covid-19 are the largest keywords and have a network between keywords on other research topics. In a study conducted by Nash, (2021) explained that the Covid-19 condition made restrictions on activities carried out face to face with other people, so that evaluations of students regarding learning experiences during the COVID-19 pandemic began to be carried out in several countries, one of which was Spain and USA (Fernández-Castillo, 2021; Kannampalil et al., 2020; Stone et al., 2021).

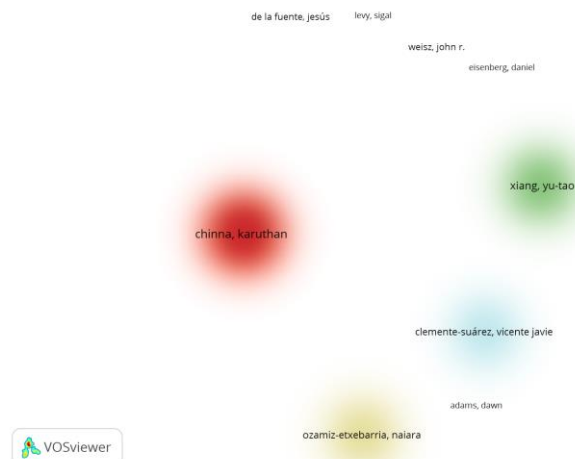


Fig 8. Author yang banyak dirujuk pada topik penelitian Academic Anxiety 2012-2021

Fig.8 shows the results of the density visualization of the author's mapping which is widely cited. A large circle with a striking color indicates a heavily cited author. While the small circle with faded color is an author who has not been cited much. In table 2 shows 10 authors who are widely cited including;

Table 4. 10 kata kunci academic anxiety 2012-2021

No	Authors	Cluster	Citation
1	Karuthan Chinna	1	386
2	Yu-Tao Xiang	2	256
3	Vicente Javier.C	6	160
4	Naiara Ozomiz	4	149
5	Jesus De La Fuente	8	77

In table 4 there are five authors who are widely used as references, such as; (Berasategi Santxo et al., 2021; Fuentes-García et al., 2020; Gaeta et al., 2021; Hossain et al., 2020; Sundarasan et al., 2020; Tang et al., 2021).

4. CONCLUSION

Feelings of anxiety in students based on the results of bibliometric analysis in 2002-2011 were heavily influenced by students' environmental factors such as family, peers, teachers and learning tools. Meanwhile, the development of research on student anxiety in 2012-2021 was heavily influenced by the COVID-19 pandemic. Popular keywords in current research include covid-19, burnout, Psychological distress, social support, self-efficacy, motivation, teaching, psychological impact, academic stress and mindfulness. The results of research using bibliometric analysis can be used as a reference to see research gaps and help in making novelty in research. However, it should be noted that this study still has limitations in the database used. Thus looking for comparative literature will increase the accuracy of the data sought.

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