The Analysis of Publication Trends on Nomophobia: a 13-Year Bibliometric Review

Triantoro Safaria[1*], Yusti Probowati[2], Soerjantini Rahayu[3]
[1,2,3]Psychology Doctoral Program, University of Surabaya, Surabaya, Indonesia

[*]triantoro.safaria.phd@gmail.com

ABSTRACT

In the past 10 years, nomophobia has attracted the attention of researchers and been recognized as a modern mental health issue, requiring further exploration. However, an analysis of research trends and publications related to this topic has not been found in the Scopus database search. The aim of this study was to conduct a bibliometric analysis to uncover trends and scientific output related to nomophobia. Publication search was conducted using the Scopus database. A total of 304 documents within the timeframe of 2010 to June 2023 were analyzed using Vosviewer. Computer in Human Behavior (15) emerged as the journal with the highest number of publications on nomophobia. Turkey (59) was the country with the highest research output on nomophobia. The scientific landscape related to nomophobia, as revealed through author keyword co-occurrence analysis in the co-occurrence map, indicated the presence of five clusters. A detailed review of these clusters is described in this article.

Keywords: bibliometric analysis, publication trend, science mapping, vosviewer.

Introduction

The internet is a widely utilized information and communication technology in contemporary times. It offers numerous positive benefits, including aiding students in completing school assignments, facilitating communication and collaboration among peers, fostering cooperative learning and the exchange of ideas, enhancing attitudes towards learning, and increasing curiosity and self-concept (Safaria & Suyono, 2020; Safaria, 2016; Wiguna et al., 2018). Moreover, the internet plays a vital role in expanding social networks, acquiring social support, establishing relationships, and enabling communication with others (Brailovskaia, Teismann, & Margraf, 2018). However, alongside these positive impacts, the advancements in information technology have also introduced new challenges, one of which is nomophobia (Kaviani, 2020; Arpaci, 2020; Durak, Hatice Yildiz, 2018; Ozdemir, Cakir, & Hussain, 2018).

Nomophobia, derived from the acronym No Mobile-phone Phobia, has emerged as a new mental health concern in the digital era (Rodr & Moreno-guerrero, 2020; Pivetta et al., 2019; Jahrami et al., 2020). It is characterized by an irrational fear or anxiety that arises when individuals cannot use, access, or communicate through their mobile phones, leading to concerns about missing out on information or experiencing disruptions in virtual communication via the internet (Yılmaz & Bekaroğlu, 2021; Olivencia-Carrión, 2018; Yildirim, 2016). Nomophobia has also been found to significantly correlate with problematic dependency, prohibited use, and hazardous usage patterns of smartphones (Kaviani et al., 2020). Furthermore, studies have shown associations between nomophobia and depression, avoidance or hostility (Arpaci et al., 2017), obsession (Lee et al., 2014), anxiety (King et al., 2013; Darvishi, 2019), panic disorders (King et al., 2010; Adawi et al., 2019; King et al., 2014), stress (Tams et al., 2018), fear of missing out (FOMO) (Mertkan et al., 2018), personality traits (such as extraversion, conscientiousness, emotional

stability and regulation, sympathy, and openness to experience), gender (Adawi et al., 2019; Lee et al., 201; Olivencia-Carrión et al., 2018; Ozdemir et al., 2018; Darvishi, 2019; Argumosa-Villar et al., 2017), mindfulness (Arpaci et al., 2019), as well as loneliness and self-happiness (Ozdemir et al., 2018).

Bibliometric analysis is a valuable approach for identifying, classifying, and categorizing elements within articles, such as keywords, index keywords, authors, co-authors, and citations (De Bellis, 2009; Bel et al., 2021). It provides insights into the most productive authors, countries, institutions, and journals within a specific research field. Furthermore, bibliometric analysis helps analyze publication production trends, collaboration networks among researchers, and the overall landscape of scientific publications through visual representations (Pan et al., 2018; Dini & Jevremov, 2021).

There are several benefits associated with bibliometric analysis. It enables the depiction of scientific productivity and current research trends, provides visual representations of specific scientific studies, offers directions for future research, identifies main research directions, scientific networks, and research development (Karakuş, 2018; Zhao & Strotmann, 2014). Moreover, bibliometric analysis facilitates communication among researchers, aids in sharing knowledge discoveries, supports information retrieval, and serves as a fundamental information source for science policy, research management, and generating ideas for future studies (Nuryana et al., 2021; Pan et al., 2018).

In this study, we utilized documents from the Scopus database. According to Harzing & Alakangas (2016), the Scopus database provides a more comprehensive collection of documents, particularly in the social sciences field, compared to Web of Science (WoS). Additionally, Scopus offers more accurate data selection, better control over referenced documents, and more reliable indexing compared to Google Scholar (Cecchino, 2010; Noruzi, 2005).

Furthermore, we focused exclusively on original research articles sourced from reputable journals. There are two primary reasons for this approach. First, research articles published in journals present the latest empirical research findings and new knowledge relevant to the analyzed theme, offering accurate and reliable insights into current research trends. Second, research articles provide comprehensive reference lists that serve as valuable citation data for further analysis. Additionally, research articles present the most up-to-date trends in a specific research topic and effectively depict the progress of scientific knowledge.

In addition to keyword analysis, our bibliometric analysis of nomophobia includes two additional maps. The first map is a bibliographic coupling map, which illustrates the relationships among authors based on the references they cite. This map can reveal different research groups and the directions shaping research within the field of nomophobia. The second map is a co-citation author map, which represents foundational knowledge that is widely disseminated and relied upon by current research (Zhao & Strotmann, 2014).

To the best of our knowledge, no bibliographic analysis specifically related to nomophobia has been found in global journal databases. Therefore, the aim of this research is to analyze the trends and evolution of the nomophobia topic and provide an overview of nomophobia studies over the past 13 years. We examine indicators such as keywords, citation counts, publication counts, document types, country and institution productivity, as well as author productivity. Given the dynamic nature of this research area, our primary goal is to offer valuable insights into research topics related to nomophobia using bibliometric analysis. Based on this analysis, we can map critical topics and domains of nomophobia, explore key issues within nomophobia research, and observe developments in the field. In this analysis, we utilize two different descriptor samples: author keywords and indexed keywords. Thus, the results provide two distinct perspectives on the nomophobia topic and reveal the main research directions of nomophobia, along with emerging areas of interest within the nomophobia research domain. Additionally, we aim to investigate

research trends and disciplines related to nomophobia by examining author coupling based on the similarity of their paper references, as well as by analyzing the network of author co-citations. These differences between research groups can offer further insights into the main research directions related to nomophobia and help explore their cohesion or differences.

This article aims to explore and delve into the major themes that have evolved in nomophobia research to date and provide some recommendations for future research directions. To achieve this objective, this study is intended to answer the following research questions: (1) What is the current status of research focusing on nomophobia? (2) What are the key thematic areas in nomophobia research in the past 13 years? (3) What is the intellectual structure of nomophobia as represented in the academic literature? (4) What are the key findings of nomophobia research? (5) What possible future research gaps can be identified in nomophobia?

These research questions will be addressed using bibliometric analysis of the literature on nomophobia. This will allow for an overview of the research that has been conducted in this area, including information on the most influential authors, journals, publishing countries, and related fields of study. Part two of the study will provide an overview of the intellectual structure of the existing literature on nomophobia, while Part three will discuss the research methodology of the paper. Part four will discuss the findings of the study, followed by a discussion in Part five of the paper. Finally, in Part seven, gaps in current knowledge about this field of research will be identified.

Method

Data Collection and Search Strategy

A total of 289 original research articles were collected from the Scopus database in June 2023 using the term "nomophobia." These articles were published within the last 13 years, from 2010 to 2023. The data was filtered based on the following criteria: articles from the all subject area, empirical research studies, published in journals, final articles or articles in press, and written in any language.
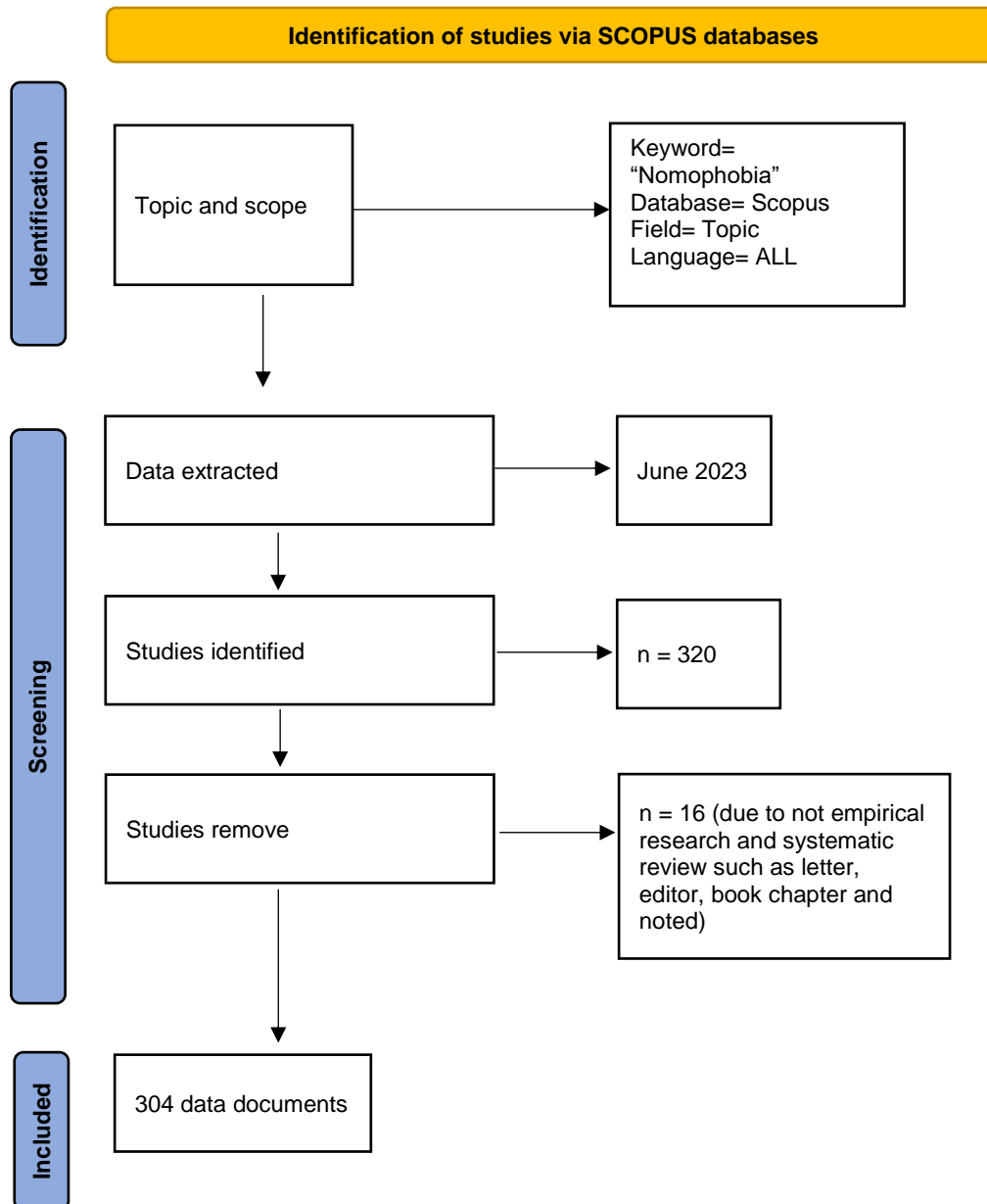
Inclusion and Exclusion Criteria

The inclusion criteria used were (1) studies on nomophobia, (2) published from 2010 to 2023, (3) empirical research and systematic review document type, (4) sources from journals and proceedings, and (5) all languages. The exclusion criteria used were (1) articles that were not empirical research and (2) articles not published in journals or proceedings.

Data Analysis

The files were downloaded from the Scopus database in Excel CSV format. The data was then analyzed using VOSviewer v. 1.6.17 (van Eck & Waltman, 2021), considering co-authorship, co-occurrence of keywords, citations, and bibliographic coupling. The results of this analysis will be presented in the form of network visualizations and overlays that will explain the publication trends related to nomophobia.

To investigate the subject areas of nomophobia, bibliographic mapping techniques were applied. The research themes were visually represented by co-occurrence keyword maps, based on keyword descriptors in the articles. In such maps, descriptors that frequently appear together in articles are placed close to each other and potentially indicate related research topics. Two keyword network maps were generated based on the type of descriptors used. In one case, author keywords were used, while in the other case, indexed keywords were used. In terms of author keywords, the most common term "nomophobia" was excluded to obtain a clearer picture of keyword clusters.

Figure 1.
The flow chart of the search process

Identification of studies via SCOPUS databases

Identification

Topic and scope

Keyword=
"Nomophobia"
Database= Scopus
Field= Topic
Language= ALL

Screening

Data extracted

June 2023

Studies identified

n = 320

Studies remove

n = 16 (due to not empirical
research and systematic
review such as letter,
editor, book chapter and
noted)

Included

304 data documents

Research trends and disciplines were represented by network maps showing relationships between authors. First, a map of bibliographic coupling of authors was generated. This map shows relationships between authors based on the similarity of documents they cite. In other words, the map depicts similarities in knowledge background or schools of thought among authors. The relationships between authors in the map are presented by placing authors who cite the same documents close to each other.

Second, a map based on co-citation analysis of authors was generated. This map depicts relationships between authors based on their co-occurrence in the same references. Authors frequently cited together are placed close to each other in the map. Such a map can reveal different directions in established knowledge represented by the authors.

Bibliographic units are represented by circles, and stronger relationships between them are indicated by lines. The size of the circle is proportional to the number of articles associated with a specific term or author, except in the co-citation map, where the size of the circle is proportional to the number of citations. The color of the circles represents cluster membership in the network maps. Additionally, keyword maps are displayed in overlay versions (Leydesdorff & Rafols 2012), where the color of the circles represents the average publication year of those articles.

Results

A total of 304 files related to nomophobia studies were found in the Scopus database, consisting of 277 empirical articles, 14 conference papers, 12 reviews, and 1 conference review. As shown in Figure 2, the number of studies on nomophobia was very low from 2010 to 2016 (1-3 documents), but it increased rapidly in 2017 (17 documents), reaching its peak in 2022 with an exponential increase (82 documents). This exponential increase is likely due to the growing number of researchers and academics who are interested in exploring and examining various factors that influence nomophobia. As a relatively new phenomenon, nomophobia has become a construct that requires further investigation. Specifically, there were 21 documents in 2018, 32 documents in 2019, 50 documents in 2020, 57 documents in 2021 and 34 documents in 2023. It is possible that there may be additional documents in 2023 because the data for this article was collected in June 2023.

Figure 2.
Annual volume of nomophobia (n = 304)
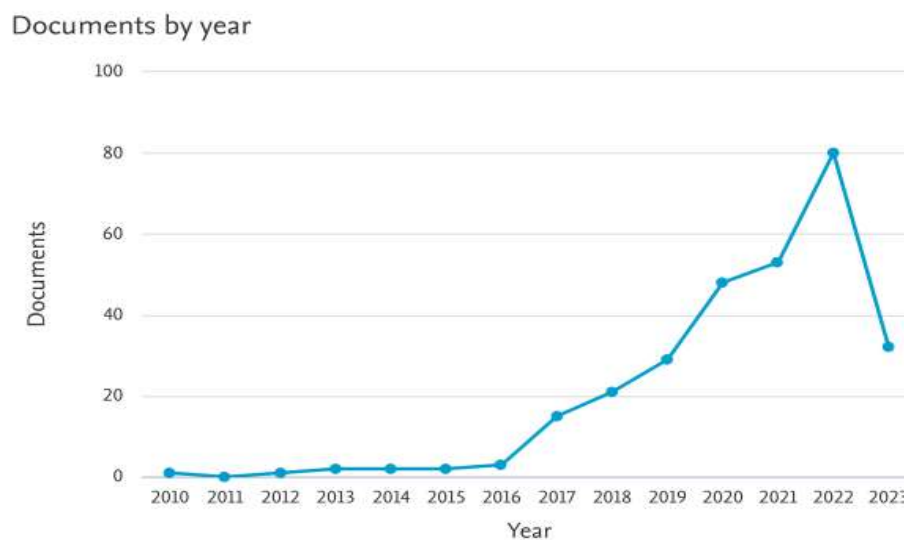
Computer in Human Behavior (15) published the highest number of articles on nomophobia, followed by the International Journal of Environmental Research and Public Health (15), Perspectives in Psychiatric Care (8), Current Psychology (8), International Journal of Mental Health and Addiction (7), Heliyon (6), and Healthcare Switzerland (6). Refer to Figure 3 and Table 1 below for more details.

Figure 3.
Selection of journals on nomophobia
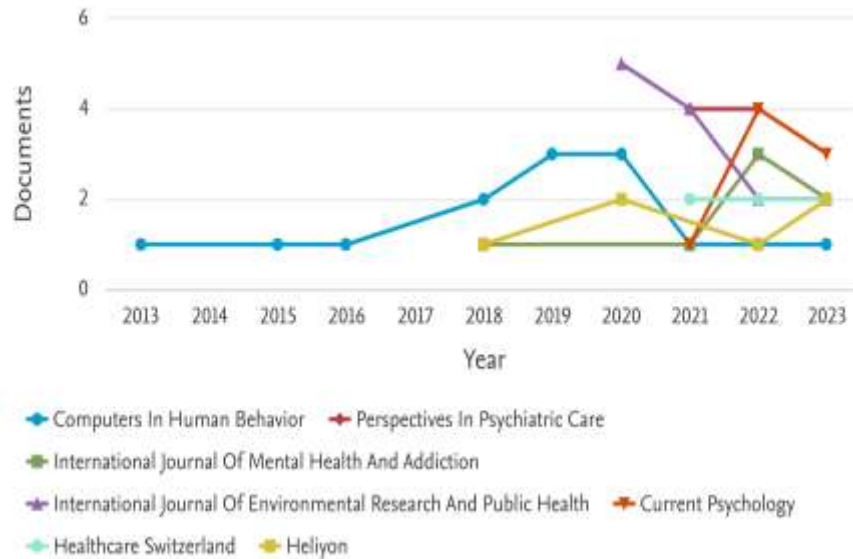
Those journals are in the first and second quartiles in SJR (SCimago Journal and Country Rank), indicating that they are important and of high quality in the field. Most of these documents are published in journals from the United States, United Kingdom, Switzerland, and the Netherlands.

Table 1.
Selection of journals with the most publication on nomophobia (2010-2023)

| Sources	Documents	Citation	Total Link Strength
Computer in Human Behavior	15	1222	96
International Journal of Environmental Research and Public Health	15	682	54
Perspectives in Psychiatric Care	8	28	15
Current Psychology	8	31	18
International Journal of Mental Health and Addiction	7	122	27
Heliyon	6	63	30
Healthcare Switzerland	6	58	16

NB: minimum 6 document showed in the table above.

The fields of medicine, psychology, social science, computer science, and nursing serve as the primary contributors of published articles, constituting 49.54% of the overall publications that delve into the exploration of nomophobia. This finding signifies the extensive research conducted by scholars specializing in mental health, psychology, social science, and computer-human interaction. Table 2 provides an overview of the document distribution across different areas of knowledge.

Table 2.
Distribution of documents in different knowledge areas

Field	n	%
Medicine	128	46,68
Psychology	93	33,21
Social Sciences	87	31,14
Computer Science	54	20,45
Nursing	34	11,76
Arts and Humanities	23	7,95
Environmental Science	22	7.62
Neuroscience	16	6.22
Engineering	15	5.88
Health Professions	13	4.84
Multidisciplinary	13	4.50
Mathematics	10	3.46
Business, Management and Accounting	8	3.11
Pharmacology, Toxicology and Pharmaceutics	8	2.77
Biochemistry, Genetics and Molecular Biology	8	2.77
Energy	6	2.08
Decision Sciences	4	1.73
Agricultural and Biological Science	3	1.38
Physics and Astronomy	3	1.04
Economics, Econometrics and Financial	2	1.04
Chemical Engineering	1	0.35
Earth and Planetary Sciences	1	0.35
Material science	1	0.35

Figure 4.
*Trend publication on nomophobia by country (minimum 9 documents)*
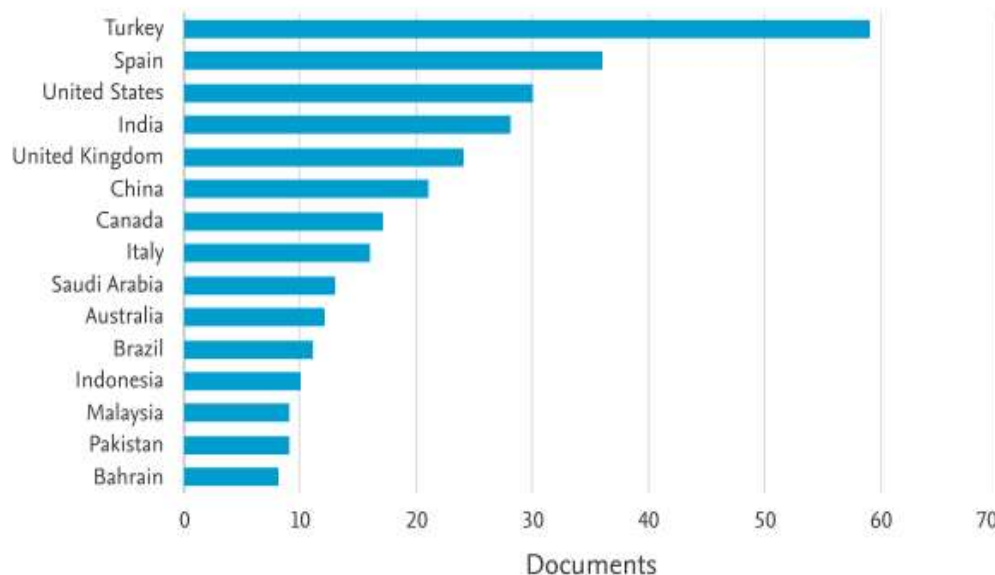
Furthermore, the country with the highest number of publications is Turkey (59), followed by Spain (36), and then the United States (30), India (28), the United Kingdom (24), China (21), Canada (17), Italy (16), Saudi Arabia (13), Australia (12), Brazil (11), Indonesia (10), Malaysia (9),

Pakistan (9) and Bahrain (8). Spain is the second-highest country in terms of publications, followed by the United States in the third position for the highest production of publications. Figure 5 illustrates the distribution of publication documents by country for the period from 2010 to 2023.

Figure 5.
Selection of author with the most publication on nomophobia (minimum 6 documents)
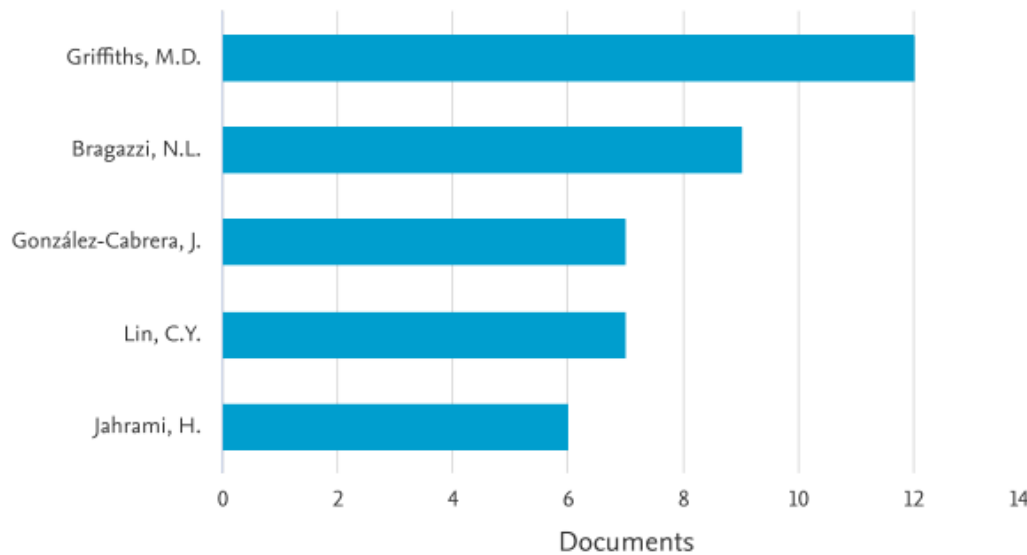
Based on co-author analysis, five productive authors were identified in generating publications. The first-ranked author in terms of productivity is Griffiths, M.D. (12), followed by Bragazzi, N.L. (9) in the second position, González-Cabrera, J. (7) in the third position, Lin, C.Y. (6), and Jahrami, H. (6). Please refer to Figure 4 for further details.

Table 3.
Selection of author with the most citation publication on nomophobia

Authors	Documents	Citation	Total Link Strength
Griffiths, M.D	13	808	33
Bragazzi, N.L.	9	344	31
Lin, C.Y	8	129	24
Jahrami, H	6	37	18
González-Cabrera, J.	8	111	7
Liu, T	6	13	3

NB: minimum 6 documents.

When considering the highest number of citations obtained by authors, Griffiths, M.D. (808) occupies the first rank, followed by Bragazzi, N.L. (344) in the second position, González-Cabrera, J. (111), Lin, C.Y. (129), Jahrami, H. (37), and Liu, T (13), respectively. Jahrami, H. became the most cited author in 2022 and beyond. Meanwhile, Bragazzi, N.L. was the highly cited author from 2017 to 2019. Please refer to Table 3 and Figure 6 below for more information.

Figure 6.
Selection of the most cited author on nomophobia study
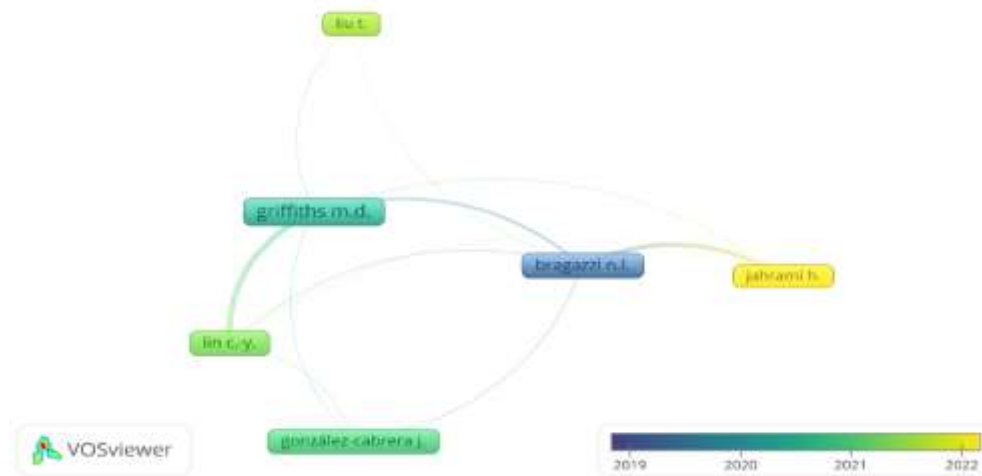
The scientific landscape of the main research areas related to nomophobia is represented in Figure 7, based on author keywords in the co-occurence map. Five main clusters can be identified in this network: 1. Nomophobia, which includes the characteristics and features of nomophobia. 2. Personality, which encompasses emotional regulation, FOMO (fear of missing out), self-esteem, mindfulness, learning strategy and attention. 3. Internet technology, which also includes problematic social media use, smartphone use, internet use, and technology addiction. 4. Mental health, which includes depression, stress, loneliness, phobia, anxiety, and academic performance. 5. Measurement properties, which includes NMPQ (Nomophobia Questionnaire), validity, reliability, and questionnaire adaptation. Figure 6 also shows that there are 23 most frequently used keywords with a threshold set at seven or higher. The most commonly used keyword in the literature is 'nomophobia' (205), followed by 'smartphone' (60), 'smartphone addiction' (32), 'addiction' (28), and 'anxiety' (27)."

Figure 7.
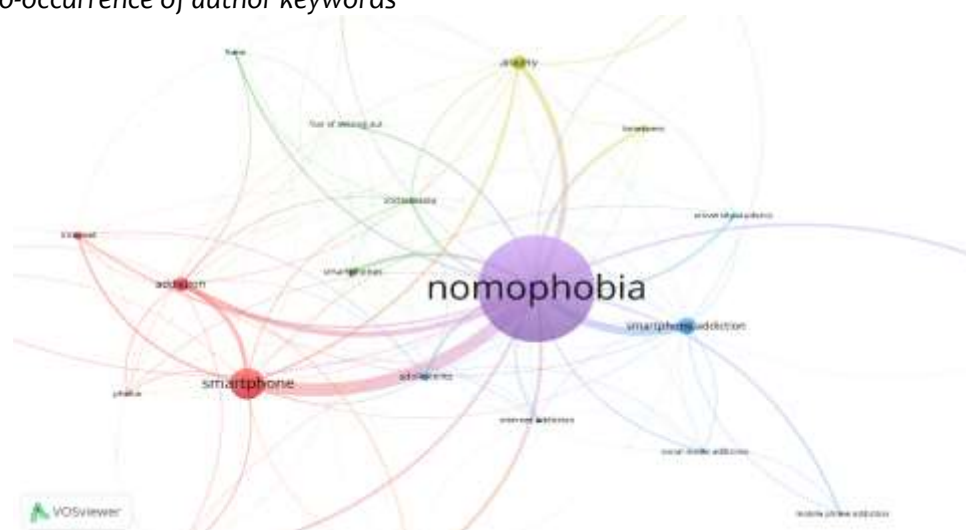*Map of co-occurrence of author keywords*

Table 4. Below presents the trends and themes of keywords found in the analysis of citation author keywords.

Table 4.
Summary of emerging theme trends through author keyword analysis

No	Trend and theme
1	Nomophobia
2	Smartphone
3	Smartphone addiction
4	Addiction
5	Anxiety
6	Social media
7	Internet
8	Adolescents
9	Smartphones
10	FoMO
11	Mobile phone
12	Nursing students
13	Loneliness
14	University students
15	Phobia
16	Fear of missing out
17	Internet addiction
18	Social media addiction
19	Depression
20	Mobile phone addiction
21	Smartphone use
22	Students
23	Mental health

Figure 8 illustrates the evolution of keywords in recent nomophobia studies (2021 and beyond). 'Depression,' 'mental health,' and 'university students' emerge as the most frequently appearing keywords in the latest studies related to nomophobia. This indicates a shift in research focus that occurred in 2021 and beyond, where issues such as 'mental health' and 'depression' are extensively explored within the sample of 'university students'.

Figure 8.
Evolution of author keywords

Discussion

Research on nomophobia has emerged in the last decade, starting with a survey conducted by UK Post in 2008 on a sample of 2,100 active smartphone users (Mail Online, 2008). Nomophobia is an acronym for "no mobile phone phobia" and is characterized as the fear and anxiety that arise when unable to use one's smartphone (Kaviani, 2020; Arpaci, 2020; Durak, Hatice Yildiz, 2018). Nomophobia is a phenomenon of the digital age that still requires exploration and further research to be comprehensively understood as a disorder (Rodr & Moreno-guerrero, 2020; Pivetta et al., 2019; Jahrami et al., 2020).

The findings presented in this paper demonstrate an exponential increase in scholarly publications—from one publication in 2010 to 82 publications in 2022. At the time of this study, there were 34 publications in 2023, with the possibility of more publications in the future. It is interesting to observe that Turkey, Spain, the United States, India, the UK, and China accounted for 58.55% of the publications in this field. Furthermore, although Turkey and Spain are not among the top 15 countries in terms of smartphone and social media penetration, they have the highest number of publications related to nomophobia. Meanwhile, the United States, India, and China rank third, fourth, and sixth, respectively, in terms of productivity in publishing on nomophobia. In fact, these three countries are among the top 15 countries with the highest smartphone and social media penetration. On the other hand, Indonesia and Brazil, which rank fourth and fifth in terms of smartphone and social media user penetration, only rank twelfth and eleventh in terms of publication productivity. One explanation for this could be the lack of awareness of the negative consequences of excessive smartphone and social media use on users' mental well-being. Therefore, more research is needed in these regions to understand problematic smartphone and social media use and to generate comprehensive insights into nomophobia. Moreover, through such research, strategies and preventive measures can be developed to address the negative impacts of nomophobia.

From the bibliometric analysis, it was found that the majority of the studies used quantitative methods to analyze data and test relationships between variables. Additionally, many studies were empirical, aiming to test relationships based on direct or indirect observations related to nomophobia. The findings presented in this paper indicate that none of the studies attempted to create or test new theories in this field, possibly due to the immaturity of the literature. Furthermore, there have been limited qualitative studies conducted in this field. Therefore, it is crucial to conduct more qualitative research in this field to explore the psychological dynamics, motivations, and underlying factors of nomophobia.

The authors found that almost all publications on nomophobia relied on samples of undergraduate students aged 19-25. However, survey data indicates that the average daily time spent on social media applications by users worldwide is highest for users aged 40-44, at 59.85 minutes per day, followed by users aged 35-39, at 59.28 minutes per day, and users aged 45-49, at 59.23 minutes per day. Therefore, more research should be conducted to explore different age groups as users aged 19-25 do not represent the entire population of smartphone and social media users. Conducting studies on different age groups may yield interesting and valuable insights. For example, it would be interesting to measure the prevalence and impact of nomophobia among older users aged 50 years or older, who spend almost the same amount of time on social media as other user groups (56.43 minutes per day).

Another finding is that there have been few studies linking nomophobia to problematic social media use and addiction. For instance, examining the correlation between the use of platforms such as Facebook, TikTok, and Instagram with nomophobia would be interesting. TikTok, in particular, has shown increasing popularity in recent years, evident from being the most downloaded application in 2021, with 656 million downloads, and ranking second in the first

quarter of 2022. Moreover, most studies have focused only on one social media platform. Comparing different social media platforms would yield interesting results, as each platform has different features, algorithms, and recommendation engines. The purposes and user behaviors for using each platform are also different, thus understanding why users become addicted to these platforms and their correlation with nomophobia can provide valuable insights.

Lastly, most studies have been cross-sectional rather than longitudinal, aiming to describe results at a specific point in time rather than over a long period. Longitudinal studies could better describe the long-term effects of social media use toward nomophobia. Additionally, experimental studies related to nomophobia are still limited, highlighting the need for further research to fill this gap.

Implications

The findings of this study have implications primarily for government entities and parents. Excessive smartphone use has negative implications for adolescents, including declining school performance, social behavior, and interpersonal relationships. Moreover, excessive smartphone use poses other risks such as sexting, social media stalking, cyberbullying, privacy breaches, and improper use of technology (Busch & McCarthy, 2021). Considering the seriousness of these risks, it is important to have regulations in place to protect adolescents from the dangers of smartphone use (Pivetta et al, 2019).

Parents should be involved in their children's smartphone and social media use to ensure they use these devices safely and responsibly. Parents should monitor their children's online activities, set time limits for social media use, and have conversations with their children about the risks associated with social media addiction (León-Mejía et al, 2021). Additionally, limiting smartphone ownership until the age of 13 or older is advisable.

A content analysis was conducted to address the fifth research question: "What are the potential research directions for addressing nomophobia in the future?" This study reveals a lack of screening instruments and diagnostic criteria to accurately assess nomophobia. Validated instruments based on the DSM-V could provide insights into the factors underlying nomophobia disorder (Bragazzi & Del Puente, 2014). Diagnostic research would be useful in understanding nomophobia as a behavioral addiction and gaining deeper insights into the factors responsible for psychological stress and psychiatric disorders. In addition to cross-sectional studies, researchers should also conduct longitudinal studies and experiments to assess changes in users' behavior over time.

From a geographical perspective, the authors have identified some main gaps in the existing knowledge base that highlight the need for further research in certain regions of the world. Therefore, the authors suggest encouraging more studies on nomophobia in underrepresented regions with high rates of smartphone and social media usage, such as Southeast Asia and South America. Journals with high impact factors could also issue specific calls for contributions from these countries. This would contribute to educating smartphone users about responsible usage and implementing policy changes that support the development of healthy social media practices.

The authors hope that the findings gathered here will stimulate interest in this topic and encourage other scholars to investigate nomophobia in different contexts and among diverse sample populations. Given the increasing number of people experiencing mental health problems (such as depression, anxiety, eating disorders, and substance addiction) in recent years, it is likely that the number of articles related to nomophobia and the range of countries covered will continue to rise.

Conclussion

This study was conducted to review the literature related to research on nomophobia and analyze global research productivity from 2010 to 2023. The study presents a bibliometric overview of the leading trends related to "nomophobia." The authors used science mapping to depict the knowledge base on nomophobia. This analysis represents the first bibliometric article exploring studies on nomophobia. A keyword search of "nomophobia" yielded 320 papers, which were downloaded from the Scopus database. After data filtering and screening, a total of 304 articles were included, consisting of 277 empirical articles, 14 conference papers, 12 reviews, and 1 conference review. The geographical distribution trends of scholarly publications on nomophobia indicate that Turkey (59) was the most productive country, followed by Spain (36), and then the United States (30). Griffiths, M.D. (12), followed by Bragazzi, N.L. (9), were the most productive scholars based on the number of their Scopus documents. Five main clusters can be identified in this network: 1. Nomophobia, which includes the characteristics and features of nomophobia. 2. Personality, which encompasses emotional regulation, FOMO (fear of missing out), self-esteem, mindfulness, learning strategy, and attention. 3. Internet and technology, which also includes problematic social media use, smartphone use, internet use, and technology addiction. 4. Mental health, which includes depression, stress, loneliness, phobia, anxiety, and academic performance. 5. Measurement properties, which includes NMPQ (Nomophobia Questionnaire), validity, reliability, and questionnaire adaptation. These five clusters represent specific areas of research focus on nomophobia globally. Computer in Human Behavior (15) and International Journal of Environmental Research and Public Health (15) were the journals that published the most studies related to nomophobia. Computer in Human Behavior had been cited 1222 times, while International Journal of Environmental Research and Public Health had been cited 682 times. These two journals were the preferred outlets for researchers studying nomophobia. In terms of impact factor (IF=8.957), Computer in Human Behavior had a higher IF compared to International Journal of Environmental Research and Public Health (IF=4.614). However, this article has several limitations that need to be addressed. Firstly, the article focuses more on science mapping through bibliometric analysis and should not be used as a replacement for established review procedures, but rather as a supplement. Therefore, this review can be considered as an initial stage, followed by substantive research syntheses that examine findings from recent research. Secondly, the data were extracted from papers indexed in Scopus, although SCOPUS data includes more papers than Web of Science, there is a possibility that there are nomophobia papers not covered by Scopus. Thirdly, the interpretation of co-citation maps in this article is subject to some degree of subjectivity because the procedure is not always clear, so scholars need to have a deep understanding of the knowledge base to make sense of the analysis results (Zupic & Cater, 2015). This issue has been addressed by the expertise of the authors, but subjectivity remains.

Acknowledgement

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