

The Cost of Mental Health on Online Gambling

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Abstract: The rapid development of technology across various digital platforms has made it easier to access online gambling sites, leading many individuals to be tempted to try their luck, ultimately causing some to become addicted and potentially disrupting their mental well-being. Research on mental health on online gambling has been conducted since 2007 up to the present year, 2023. Therefore, scientific research utilizing bibliometric analysis has become crucial. The aim of this study is to examine current literature on participatory budgeting by assessing publication trends, citation analysis, most-cited authors, and overall themes. We hope that this study can be beneficial for researchers and professionals, especially in the field of mental health. The research employs bibliometric methods on 55 publication documents from the Scopus database spanning from 2007 to 2023. Microsoft Excel is used for frequency analysis, VOS Viewer for data visualization, and Harzing's Publish or Perish for citation counting. The focus of this research is to determine the most common authors, research topics, and citation patterns related to the study of mental health on online gambling. This research endeavour offers a bibliometric scrutiny of the literature regarding mental health as it pertains to online gambling. The inquiry demonstrates that online gambling has manifold consequences on mental well-being, including but not limited to addiction, stress, anxiety, depression, and suicide. Furthermore, this examination pinpoints the lacunae and obstacles within the present literature, while also proposing avenues for forthcoming research. Ultimately, the purpose of this study is to contribute to the knowledge and praxis of mental health professionals who are confronted with issues relating to online gambling.

1 INTRODUCTION

Online gambling is increasingly popular in this digital era due to the easy access to a variety of games and the allure of substantial cash prizes. Online gambling encompasses betting, such as on various football events or even during elections, as well as online games like roulette, poker, blackjack, and others. A large majority of individuals who engage in online gambling also participate in offline gambling, indicating that gamblers take advantage of the increased accessibility to various forms of gambling (Griffiths & Kuss, 2015).

The global increase in online gambling has led to a corresponding increase in the number of individuals seeking treatment for gambling addiction specifically related to internet gaming (Sharman et al., 2019; Hing et al., 2015; Wood & Williams, 2009). While it is indicated by empirical evidence that individuals who engage in gambling activities offline are more

frequently encountered in clinical environments (Gainsbury, S. M. 2015) and services for problem gamblers (Ledgerwood et al., 2012), a few jurisdictions (such as Sweden) have reported that online gamblers seeking help have surpassed offline gamblers for the first time (Rodda, 2017.).

Although gambling is a form of entertainment and enjoyment for some consumers, there is a small portion of the population that engages in compulsive gambling, where their participation extends beyond entertainment and leans towards the realm of losses (Gupta et al., 2006). Issues emerging from gambling arise when gambling behaviour results in substantial financial losses for people, their acquaintances, and their families, as well as for the community (Ferris and Wynne, 2001). The global prevalence rates of gambling-related issues among the adult population range from 0.12% to 5.8% (Calado and Griffiths, 2016).

There is a considerable amount of research explaining the relationship between online gambling

and mental health. Online gambling also has negative impacts on the mental health of participants, such as stress, anxiety, depression, and the potential for addiction that can affect brain function. Individuals who become addicted to online gambling will exhibit distinctive psychological reactions and characteristics. Economic pressures can lead a gambler to suffer emotionally and psychologically, ultimately damaging relationships with friends or even family. However, family and friends need to be aware of the proper ways to approach someone addicted to online gambling and become more sensitive to the issue. Research suggests that due to the negative perception of gambling problems, family and friends often turn to the internet to get guidance on how to address their loved ones' gambling concerns (Banks, et al., 2018; Rodda, et al., 2013).

Escalating financial losses might give rise to intergenerational repercussions, culminating in destitution or lack of permanent housing (Browne et al., 2016). Studies have found that online problem gamblers, in comparison to those who gamble offline, are more likely to be male, younger, have lower levels of psychological stress, have difficulties with sports and race betting, and are less inclined to seek assistance (Hing et al., 2015; Wardle et al., 2011). Online gamblers typically have higher levels of debt compared to offline gambling (Estévez et al., 2017).

Notwithstanding significant losses, the proportion of individuals seeking treatment for gambling issues is minimal, since less than 10% of problem gamblers actively seek assistance from trained professionals (Evans & Delfabro, 2005; Slutske, 2006). Several obstacles to getting therapy have been found, such as feelings of embarrassment, discomfort, and social stigma (Gainsbury, Hing, & Suhonen, 2014). Online information can mitigate certain obstacles to accessing assistance for mental health concerns (Baumel et al., 2018; Lal & Adair, 2014) and enhance the probability of persons seeking help, complying with treatment, and achieving recovery (Griffiths & Crisp, 2013; Jorm, 2012). The guidelines encompass mental health first aid protocols for various conditions such as depression, eating disorders, non-suicidal self-injury, panic attacks, excessive drinking, drug addiction, psychosis, suicidal thoughts and behaviors, and traumatic experiences in both adults and children (Jorm & Ross, 2018).

A study conducted in Canada with a sample size of 32 individuals who had issues with online gambling demonstrated that cognitive-behavioral treatment (CBT), which is routinely employed to treat problem gamblers in physical casinos, is equally successful in treating individuals with problematic online gambling habits (Harris & Mazmanian, 2016a). Nevertheless,

this study did not examine potential distinctions between cognitive-behavioral therapy (CBT) for those who gamble in physical locations and those who gamble online. Instead, it focused on comparing online gamblers who received treatment with those who were placed on a waiting list. Thus, it is not possible to make any definitive conclusions regarding the relative effectiveness and specificity for those who gamble online. In another qualitative study conducted by the same authors (Harris & Mazmanian, 2016b), open responses were collected from 24 online gamblers who identified themselves as seeking treatment for gambling disorder. The study found evidence that Cognitive Behavioral Therapy (CBT) was beneficial for this group. However, it was concluded that there was no need to customize CBT specifically for the unique aspects of online gambling.

One factor contributing to online gambling being risky for mental health is cognitive distortion. Cognitive distortions are thinking errors that lead someone to believe they can influence the outcome of the game or that they will eventually win (Wallace, 2022). These cognitive distortions can lead someone to continue gambling despite significant losses and feeling unable to stop. Cognitive distortions can also be influenced by factors such as mood, emotions, expectations, and social influence.

Given the observed phenomena, it is crucial to further analyze the trends in the relationship between online gambling and mental health over the past few decades. The aim of this research is to identify factors influencing the mental health of online gamblers, measure the levels of their dependence and cognitive distortions, and explore the psychological and social impacts of online gambling on themselves and their close associates. This research is expected to provide insights and recommendations for online gamblers, their families, communities, and governments to prevent and address mental health issues resulting from online gambling. The bibliometric techniques applied in this research focus on mental health studies, offering measurable and objective benefits. By employing these methods, researchers can identify publication trends, analyze citations, assess author popularity, and explore research themes related to mental health on online gambling.

2 LITERATURE REVIEW

2.1 Online Gambling

Gambling issues have been identified as an emerging public health concern, and there is a need to identify

gambling trends and regularly update the prevalence rates of gambling worldwide. For most people, gambling is a fun and harmless activity. However, for a small percentage of individuals, it can become an addiction and a problem with severe negative consequences (Meyer, Hayer, & Griffiths, 2009).

Online gambling, also known as internet gambling, is a form of gaming that involves the use of money or goods as stakes, where the winner is determined through various types of games, such as cards, mahjong, lotteries, and others, played through electronic media with internet access. Online gambling has been increasingly popular in comparison to traditional gambling due to several factors, including constant accessibility, anonymity, and faster gameplay (Barraut & Varescon, 2016). With the rapid development of digital technology and online platforms, access to online gambling has become easier compared to conventional gambling in physical locations. Online gambling can be highly enticing and addictive, as the potential for significant profits can encourage individuals to keep trying. Many people who initially just try online gambling end up caught in a cycle of increasing bets, unaware that the larger the bets they take, the greater the risk of potential losses.

2.2 Mental Health

Mental health refers to a condition of optimal psychological well-being, where individuals are able to recognize and utilize their own capabilities, effectively manage typical daily pressures, maintain productive and meaningful work, and make positive contributions to their communities (World Health Organization, 2004). Good mental health indicates that an individual has the capacity to lead a meaningful, productive, and balanced life, and can cope with the challenges and pressures of daily life. Mental health disorders, such as depression, anxiety, and schizophrenia, can impact a person's mental well-being and require medical attention and support. Optimal mental health is a key component in achieving overall well-being.

2.3 Types of Online Gambling

There are four categories of gambling based on the psychological characteristics of the gamblers, (Stanford Wong and Susan Spector, 1996)

Gambling: This refers to widespread online gambling, such as Online Betting, Online Casinos, Online Sports Betting, Online Poker, and Online Togel.

Sociable Games: These are games where everyone wins or loses together. In this category, players wager money or items on a predetermined device or medium, not against each other. Examples of such gambling include Dice, Baccarat, Pai Gow Poker, Blackjack, Let It Ride, and American Roulette.

Analytical Games: These are gambling activities that require research, accurate information, and the ability to analyze various events. Examples include Horse Racing and Sports Betting.

Patience Games: These are leisurely gambling activities where players are not in a hurry to see results. In this category, players must patiently wait for their chosen numbers to be drawn. Examples of games in this category include Lottery, Keno, and Bingo.

2.4 Causes of Online Gambling

2.4.1 Social and Economic Factors

Individuals who engage in online gambling often believe that it can yield instant and easy profits, leading to significant addiction as they envision quick wealth.

2.4.2 Situational Factors

People may turn to online gambling due to a consumer-oriented society and the pressure to earn money easily and rapidly without exerting much effort. This is reinforced by the extensive marketing of online gambling, enticing individuals to try due to its perceived high success rate.

2.4.3 Learning Factors

Individuals enticed into online gambling may be driven by curiosity or invitations from others, sparking their interest to try. This factor also contributes to why someone continues to gamble; even if they lose, there is a belief that they might win in future opportunities.

2.4.4 Perception of Winning Probability Factors

Gamblers find it difficult to quit gambling because they are convinced that they have a high chance of winning and that it can bring greater profits than the amount wagered.

2.5 The Impact of Online Gambling on Mental Health

The present younger generation is maturing in a time period characterized by the prevalence of gaming chances (Volberg et al., 2010; Gupta and Derevensky, 2000). In addition, technological progress has led to the emergence of novel gambling platforms such as the Internet, mobile phones, and interactive television (Griffiths and Parke, 2010). Additionally, it is said that the younger population rapidly adopts contemporary forms of gambling because of the evident parallels between these activities and other technology-driven games that they are already acquainted with (Delfabbro et al., 2009).

The issues arising from gambling arise when gambling behavior results in substantial financial losses for the individual, their social circle, or the community (Ferris and Wynne, 2001). Individuals afflicted with mental health disorders, such as anxiety and depression, are at a heightened risk of encountering difficulties as a result of engaging in gambling activities (Rockloff et al., 2020). Psychological disorders frequently contribute to societal deficits (Stanton et al., 2020), which, when coupled with gambling-related concerns, might intensify the deficits. The global prevalence of individuals suffering from gambling-related issues is estimated to be between 0.12% and 5.8% of the adult population (Calado and Griffiths, 2016). While gambling can be a relatively harmless pastime for certain individuals, it carries the risk of several negative outcomes such as financial hardships, strained relationships, deteriorating health, reduced work efficiency, and engagement in criminal behavior (Browne et al., 2017).

Empirical evidence exists that investigates the influence of gambling disorders on mental health (Scholes-Balog & Hemphill, 2012). Responsible gamblers typically engage in gambling for leisure purposes, while problem gamblers seek to utilize gaming as a means to modify their existing emotional states (Wood & Griffiths, 2015). According to King and Barak (1999), individuals with gambling problems experience negative emotions both during online gaming and in general. According to multiple user testimonies, those who participate in different forms of online gambling have a higher occurrence of mental health illnesses (Lloyd et al., 2010). Additionally, online gamblers are more susceptible to alcohol and cannabis usage (Scholes-Balog & Hemphill, 2012; Kairouz, et al., 2012;).

Individuals suffering from mental health disorders are prone to resort to gambling as a means of seeking

relief. Individuals who utilize gambling as a means of escapism are prone to engaging in more frequent gambling activities. Moreover, those who partake in high-risk betting are more inclined to experience financial losses, leading to increased overall expenditures on gaming. Hence, these two gambling traits have the potential to foster the emergence of gambling-related issues and have been linked to risks in gambling conduct surveys (Flack and Morris, 2015; Wiehler and Peters, 2015). Studies suggest that individuals with depression find playing electronic gaming machines in a state of flow highly pleasurable (Dixon et al., 2019). Additionally, gambling as a means of escape can moderate the connection between depression and encountering gambling-related issues (Vaughan and Flack, 2022).

3 METHODS

This study employs bibliometric analysis, which has the capacity to address questions in the field of research. The bibliometric approach involves the use of quantitative analysis and statistical methods to evaluate literature. Yeung, et al., (2017) advocate for the adoption of bibliometric techniques, revealing significant citation scores for brain imaging and brain connectivity terminology in neuroscience research from 2006 to 2015. It is noteworthy that this methodology extends beyond the confines of books, articles, journals, and other published works (Hall, 2011; Daim et al., 2006; Bellis, 2009). Bibliometrics enables the examination of publications, encompassing authors, citations, and keyword frequencies (Rusly, et al., 2019; Ahmi & Mohamad, 2019), thus allowing for an assessment of the research's significance across various scientific domains.

In this specific investigation, researchers obtained metadata from the Scopus database using the specified keywords 'Mental Health in Online Gambling'. Through this process, Scopus data yielded a total of 55 documents related to Mental Health in the context of Online Gambling. This collection includes 41 articles, 6 reviews, 4 editorials, 2 letters, 1 note, and 1 conference paper. The next step in the examination involved exporting the metadata in CSV format. Subsequently, the researchers utilized VOS Viewer to visually represent the network and conducted frequency analysis using Microsoft Excel.

4 RESULTS AND DISCUSSIONS

Gambling has become a common phenomenon frequently encountered in society. Anyone can engage in gambling, regardless of gender, age, or socio-economic background. Unlike in the past when gambling typically involved face-to-face interactions, the current situation is different. Gambling no longer requires direct face-to-face encounters; instead, the gambling system has become global (Susanti, 2021). The increasing number of players and enthusiasts in online gambling is closely tied to the advancement of technology worldwide. Individuals can easily access various online gambling sites from anywhere and at any time. This is a concern as it is anticipated to impact not only the mental health of users but also the mental health of those around them, such as spouses, children, parents, and siblings. (Park et al., 2022) indicates that treatment for someone addicted to online gambling is still difficult to find due to low accessibility, stigma, and costs. That's why appropriate treatment is still being continuously evaluated.

For the past few years, the world has been hit by Covid-19, causing a very significant impact on digital developments, including gambling. Financial and mental health issues are affected by online gambling behaviour (Price et al., 2023). Due to the recommendation for self-isolation, individuals are conducting all activities through gadgets, leading to a rapid increase in online gambling players. The risk of online gambling addiction appears to be significant compared to offline gambling. This is due to the various online gambling variations on different websites, coupled with relatively larger and more enticing bonuses and profits. These factors encourage individuals to continue playing online gambling in the hope of multiplying their gains. However, their psychological well-being can easily be threatened.

Serna et al. (2023) investigated various factors influencing the increased risk of online gambling addiction, such as parental education and family. A study found that an authoritative and indulgent parenting style can protect children from becoming addicted to online gambling. Conversely, an authoritarian parenting style, characterized by strictness and coercion, can lead children to gravitate towards online gambling sites. Additionally, there is the phenomenon of tipsters. Research has highlighted the influence of tipsters as influencers in online gambling and their potential to increase the risk of addiction to this activity (González-Vallés et al., 2021).

Susanti (2021) conducted a study on the phenomenon of online gambling and its impact on

individuals, especially players, which tends to lean towards the negative side. In terms of material aspects, individuals who lose in gambling may lose material possessions, such as money they could have used as capital. They might resort to other measures, such as not paying money for buying books or for educational purposes but redirecting it as additional deposits. On the spiritual side, individuals who win in gambling often engage in negative activities, such as excessive drinking and other deviant behaviours. Online gambling tends to have more negative effects than positive ones. The impact is not only on the gamblers themselves but also affects those around them. Marital conflicts can arise due to individuals addicted to online gambling. Typically, husbands who engage in online gambling tend to spend their money on purchasing internet data packages and continuously making deposits. This addiction poses a danger to the psychological well-being of individuals because the misfortune in gambling can disrupt the mental health of the players. Their emotions are likely to be unstable, leading to conflicts in the household, and an increased vulnerability to domestic violence (KDRT). This condition can not only be verbal but also cause non-verbal trauma to those around them.

In conclusion, it can be inferred that engaging in online gambling can give rise to various psychological issues for players. Online gambling has the potential to disrupt the brain's functioning, subsequently releasing dopamine hormones and inducing feelings of pleasure and satisfaction. After winning a bet, an individual's brain elicits an emotional response. When addicted, other activities may no longer produce the same positive response, leading individuals to resort to gambling to achieve a similar sense of joy. Additionally, online gambling can have adverse effects on physical well-being, including increased stress, sleep deprivation, and other cardiovascular problems. Online gambling has the potential to harm social and familial relationships, as it can lead to deceptive, stealing, violent behaviors, and more.

Susanti (2021) suggests that decisive actions are needed by implementing legal sanctions and rehabilitation for players, bookmakers, and tipsters to discourage their support for online gambling activities. Rehabilitation efforts can also be carried out by local community leaders to encourage people to actively monitor and report instances of increased online gambling activities. Regarding the perpetrators or players of gambling and individuals directly involved in online gambling activities, besides facing legal penalties, they can also undergo rehabilitation to help them become better individuals and refrain from engaging in deviant activities.

Based on the results of data retrieval using Scopus related to mental health in online gambling, the collected data in CSV format was further processed using VOS viewer. This is done to generate a visualization of the data in the form of images that are easily understandable.

Based on the observation results, there are various types of documents related to the search keywords

'MENTAL HEALTH ON ONLINE GAMBLING.'

We present the analysis results in several tables according to subject area, document type, source title, affiliation, search keywords, dominant country, search type, and language used. We also include the VOS Viewer search results in the form of images and clustering as visualizations that support this research.

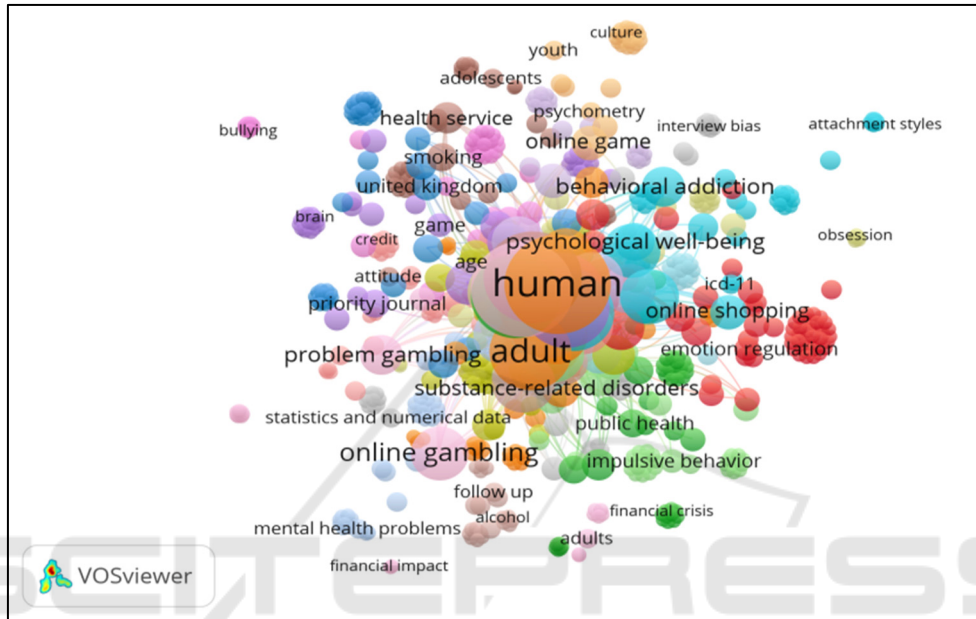


Figure 1. Network Visualization Display of Scopus Database

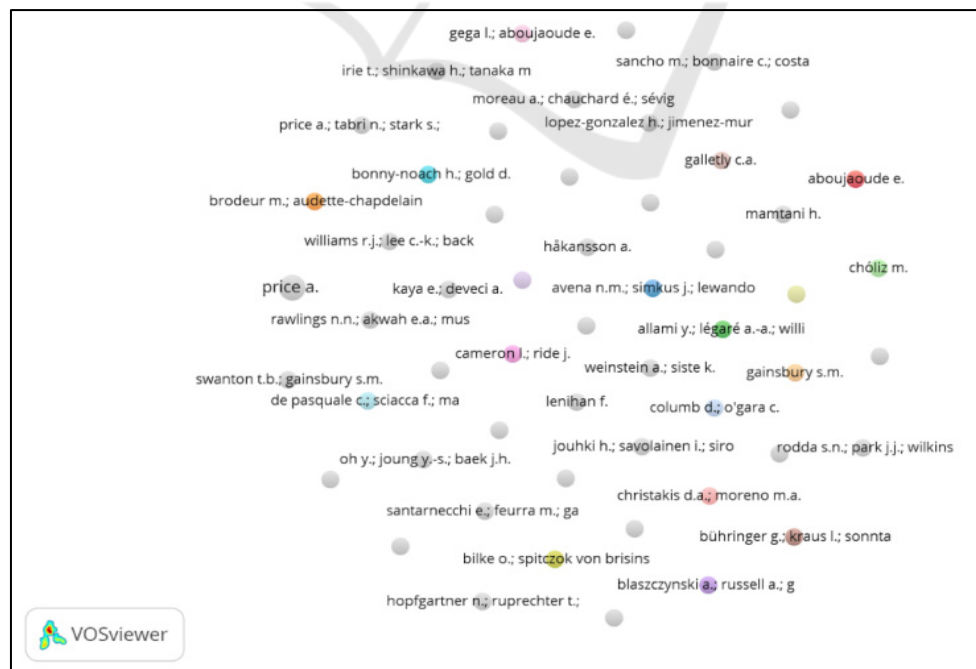


Figure 2. Network Visualization Display of Scopus Database Based on Authorship

Table 1: Subject Area

Subject Area	Total
Medicine	45
Psychology	15
Environmental Science	8
Social Sciences	7
Neuroscience	6
Arts and Humanities	3
Pharmacology, Toxicology, and Pharmaceutics	2
Nursing	2
Engineering	2
Computer Science	2
Multidisciplinary	1
Mathematics	1
Health Professions	1
Biochemistry, Genetics, and Molecular Biology	1

Table 1 represents the distribution of research papers or publications in various fields of study. Medicine has the highest number of publications with a total of 45 publications, which indicates a strong emphasis on research in this field. Psychology is next with 15 publications, which indicates a significant academic focus in this field as well. Environmental Science, Social Sciences, and Neuroscience each followed with 8, 7, and 6 publications, respectively, which indicate a substantial presence in the world of science. The lower numbers in the clusters of Arts and Humanities, Pharmacology, Toxicology, and Pharmaceutics, Nursing, Engineering, Computer Science, Multidisciplinary, Mathematics, Health Professions, and Biochemistry, Genetics, and Molecular Biology may indicate relatively less research output in these fields or perhaps a narrower focus.

Table 2: Document Type

Document Type	Total
Article	41
Review	6
Editorial	4
Letter	2
Note	1
Conference Paper	1

Table 2 is a summary table of citations for various types of academic publications. From the data, we can observe that the publication “Article” has received 41 citations, making it the most cited document category. “Note” and “Conference Paper” received 1 citation, which is common for this type of publication. “Letter” has received 2 citations,

indicating little academic attention, while the publications “Review” and “Editorial” have obtained 6 citations and 4 citations, respectively, indicating the importance of the papers in the scientific discourse. The total of 55 citations shows how much the topic of Mental Health on Online Gambling contributes to the realm of science (scientific).

Table 3: Journal Source

Source Title	Total
International Journal of Environmental Research and Public Health	8
Frontiers in Psychiatry	5
Journal of Gambling Studies	4
International Journal of Mental Health and Addiction	4
Social Science and Medicine	2
Journal of Behavioral Addictions	2
Addictive Behaviors	2
World Psychiatry	1
Sucht	1
Sosial Psychiatry and Psychiatric Epidemiology	1
Public Health	1
Psychiatry Investigation	1
Plos One	1
Neuroscience and Biobehavioral Reviews	1
Monatsschrift Fur Kinderheilkunde	1
Medical Journal of Australia	1
Lecture Notes in Computer Science Including Subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics	1
Lancet Psychiatry	1
Journal of Addictive Diseases	1
Jmir Serious Games	1
Irish Journal of Psychological Medicine	1
Internet Interventions	1
International Journal of Adolescent Medicine and Health	1
Frontiers in Digital Health	1
Early Intervention in Psychiatry	1
Current Psychology	1
Current Opinion in Psychiatry	1
Current Addction Reports	1
Comprehensive Psychiatry	1
British Journal of General Practice	1
Brain Stimulation	1
BMJ Open	1
BMC Public Health	1
Archives of Pediatrics and Adolescent Medicine	1
Advances In Psychiatric Treatment	1

Table 3 provides a brief overview of the publication and citation patterns over several years, highlighting the variability in the number of

publications. The analysis on the number of citations shows evidence that there is a significant variation in the number of citations received by publications from different years from 2007 to 2023 (now). This indicates that although there is variation in the annual number of publications and citations, the overall work has had a significant impact

Table 4: Afiliation

Affiliation	Total
The University of Sydney	4
Responsible Gambling Council	3
University of Calgary	3
Hospital Universitari de Bellvitge	3
Institut d'Investigacio Biomedicade Bellvidge	3
Universitat de Barcelona	2
Instituto de Salud Carlos III	2
Yale University	2
Nottingham Trent University	2
University of Zagreb School of Medicine	2
University of Split	2
Klinicka bolnica Dubrava	2
University of Zagreb	2
The Australian National University	2
University of Manitoba	2
Tampere University	2
Universite de Sherbrooke	2
Southern Cross University	2
Yale Child Study Center	2
Centre for Addiction and Mental Health	2
University of Toronto	2
Yale School of Medicine	2
University of Lethbridge	2
University of Southampton	2
University of Southampton, Faculty of Medicine	2
Lunds Universitet	2
Connecticut Mental Health Center	2
Universite Laval	2
Stanford University School of Medicine	2
Ariel University	2
Centro de Investigacion Biomedica En Red de Salud Mental	2

Table 4 explains the contribution of each university in providing articles related to mental health on online budgeting. The search results show that The University of Sydney has the highest number with 4 articles, indicating that The University of Sydney appears most frequently in the data search. Next in rank are Responsible Gambling Council, University of Calgary, Hospital Universitari de Bellvitge, and Institut d'Investigacio Biomedicade Bellvidge, all of which have 3 articles each. and some other universities have lower contributions, namely 1 article. This means that they are relatively rare in this

data set. This analysis provides insight into the distribution of these universities in supporting the literature on mental health on online gambling.

Table 5: Top Keyword

Top Keyword	Total
Comorbidity	9
Aged	9
Surveys And Question	8
Risk Factor	8
Problem Gambling	8
Prevalence	8
Mental Disease	8
Behavioral Addiction	8
Alcohol Consumption	8
Psychological Well-being	7
Impulsiveness	7
Gender	7
Pandemics	6
Online shopping	6
Online Game	6
Lockdown	6
Drug Dependence	6
Distress Syndrome	6
Anxiety Disorder	6
Video Games	5
Video Game	5
Substance-Related Disorders	5
Social media	5
Review	5
Population Research	5
Health Service	5
Health Care Personel	5
Disease Severity	5
Cognition	5
Behavior Asessment	5
United Kingdom	4
Suicide	4
Suicidal Ideation	4
South Korea	4
Smoking	4

Table 5 provides an overview of the frequency of keywords in the data set, which are related to research or literature analysis in the field of mental health and gambling. "Comorbidity" and "age" appear as the most frequent keywords with a number of 9, indicating the strong presence of these concepts in the data set. This shows that comorbidity and age are important focuses of the material that needs to be analyzed. In addition, terms such as "mental illness" and "addictive behavior" appear next with a number of 8, indicating that these terms are also relevant topics. Overall, this table provides a brief overview of

the prominent keywords in the data set, which can guide further exploration and analysis of the underlying research or literature.

Table 6 and Figure 3 show the contribution of each country for articles related to “Mental health on online gambling”. The search results show that Canada and Australia have the most articles with 11 articles, indicating that these two countries appear most frequently in the data search. The United States and the United Kingdom are second with 8 articles, and some countries such as Italy, Indonesia, and India have 1 to 3 articles. This indicates that they are not very common in this data set. This analysis supports the literature on mental health on online gambling by providing insight into the distribution of these countries.

Table 6: Country

Country	Total
Canada	11
Australia	11
United States	8
United Kingdom	8
Spain	4
South Korea	3

Italy	3
Israel	3
Germany	3
France	3
Finland	3
Sweden	2
India	2
Croatia	2
Undefined	1
Uganda	1
Turkey	1
Switzerland	1
Portugal	1
North Macedonia	1
New Zealand	1
Lithuania	1
Japan	1
Ireland	1
Indonesia	1
Hungary	1
Gibraltar	1
Cyprus	1
Cameroon	1
Austria	1

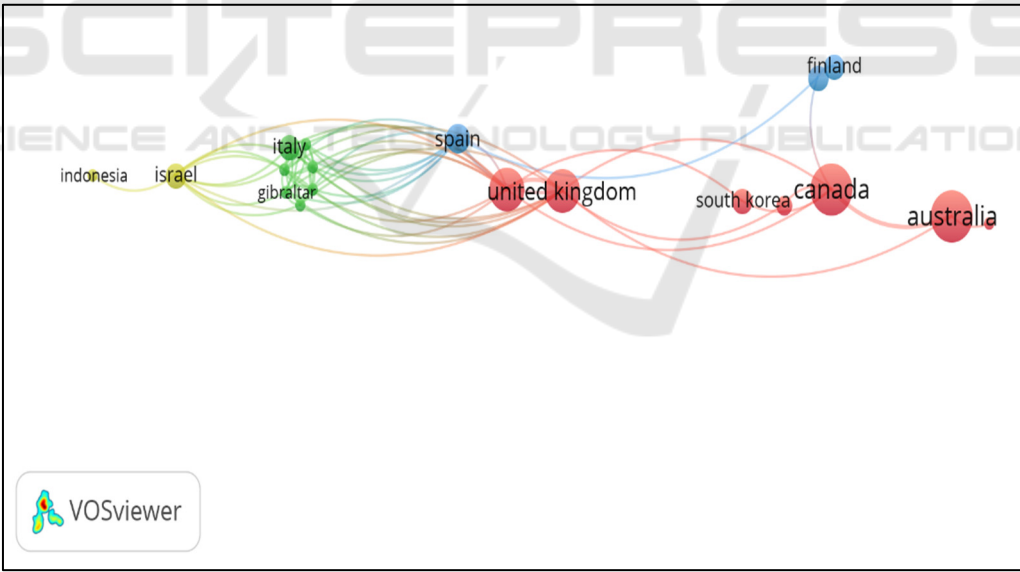


Figure 3: Network Visualization View of Scopus database by Country

Table 7: Document Source

Source	Total
Journal	54
Book Series	1
Total	55

Table 7 describes the types of sources available for various types of academic publications. Journal sources with type 54 are the most cited, as shown by the data. Followed by book series as many as 1, indicating a lack of academic attention. A total of 55 citations shows how important mental health is in online gambling in science.

Table 8: Language

Language	Total
English	53
German	2
Total	55

Table 8 shows the distribution of titles in various languages, with a total of 55 titles; English titles dominate the collection, with 53 titles, indicating a significant majority. This shows that English is the main language used for these titles, and this may reflect the main language of the source material or the intended audience. Meanwhile, Germany only contributed two articles in the total count, indicating that they are less present compared to England.

5 CONCLUSIONS

This research uses bibliometric analysis to gain knowledge about the trends and current state of research, current citations, most popular authors, and future research on mental health on online gambling. The first is about the current trends and conditions of mental health on online gambling research publications. Studies on Mental Health on Online Gambling have started since 2007 until now. Since 2007, the number of publications has increased significantly. Most of the research on Mental Health on Online Gambling has been published in the form of articles and in English.

In this case, International Journal of Environmental Research and Public Health is the source title that publishes the most studies. In addition, Canada and Australia are the most dominant countries in contributing to the research publications on Mental Health on Online Gambling. Meanwhile, the institution that publishes the most research on Mental Health on Online Gambling currently is The University of Sydney. Human is the highest keyword with 47 keywords for this research. In addition, the research on Mental Health on Online Gambling is mostly done in the field of medicine, so this field of study can be seen from a health perspective.

Regarding the citation patterns in the current publications on Mental Health on Online Gambling. The highest number of citations is Gainsbury S.M. (2015) with 136 citations. In 16 years of publication, there are 55 articles on Mental Health on Online Gambling. Therefore, Gainsbury S.M. (2015) provides a significant contribution to the number of citations. The most cited articles

generally come from Canada, Australia, the United States, and the United Kingdom.

This research has significant implications for regulatory policies and efforts to prevent online gambling. It can help identify causative factors, mental health risks associated with online gambling, motivate enhancements in public protection, and encourage platform providers to implement responsive measures to address these issues. In this context, it is crucial to integrate mental well-being aspects into online gambling regulations to prevent potential negative impacts.

Opportunities for further research may include factors in online gambling affecting players' mental health, effective prevention and intervention strategies to reduce mental health risks related to online gambling, the influence of new technologies on the online gambling experience, the impact of online gambling on vulnerable populations such as teenagers or individuals with mental disorders, and the role and impact of family involvement in online gambling on players' mental health.

This research has limitations that need to be overcome, the first one is about the database used in this research. This study utilizes data sourced from the Scopus database. The database utilized must be enlarged in order to acquire more thorough findings in the subsequent research. While Scopus is the most extensive academic database, it is possible that there are still several journals that are not included in its coverage. Additional databases that can be utilized for future research include Dimension, Web of Science, PubMed, and Google Scholar.

Second, the keywords used in this research are Mental Health on Online Gambling which are only taken from the keywords. This means that the search query results on other columns such as authors, affiliations, source titles, abstracts, and keywords have not been included. For the next research, it is expected to obtain more representative results by including other fields in this research.

Third, although this research uses formal tools such as PoP, VOSviewer, and Mendeley applications, subjective assessments by the authors can still lead to the introduction of errors. There is no search request that is 100% perfect. Nevertheless, despite these limitations, our research has made a valuable contribution to the bibliometric analysis of the Mental Health sector in relation to Online Gambling which has not been much researched. It is hoped that this research can provide meaningful insights that can be used as a reference for developing science in this field.

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