

Social Media Short Video Addiction for the Elderly: A Bibliometric Analysis

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Abstract

Recent years have seen the popularity of short-form video apps increase. This behavior is yet to be fully explored. This study focused on a bibliometric analysis conducted to scrutinize the existing literature concerning addiction behavior to short videos, with a particular emphasis on its prevalence among the elderly population. A three-step process guided the study: temporal trends in scholarly publications, countries contributing significantly to the discourse, and prevailing research topics in this area. The Web of Science (WOS) database was searched comprehensively and yielded 181 articles relevant to this research between 2012 and 2023. According to the data, the amount of publications has steadily increased, experiencing a marked increase post-2014, and China has been identified as the most prominent contributor with 35 publications. A highlighted frequency analysis revealed that the majority of the research has concentrated on adolescent addiction. However, terms like "short video problematic use" and "excessive use" have begun to gain prominence in the scholarly discussion as of 2023. This research offers valuable insights into the evolving landscape of short-video addiction, identifying key contributors, hotspots, and future directions. By emphasizing the unexplored impact on the elderly, the study not only enriches the existing literature but also provides crucial information for policymakers and researchers seeking a comprehensive understanding of short-video addiction's implications across different demographic groups.

Keywords: Addiction Behavior, Short Videos, Elderly Population, Bibliometric Analysis

Introduction

Information systems act as a bridge connecting people and information in today's society. The sustainable development of information systems emphasizes attention to information, people, technology, and the environment. Short videos, although new to the ecosystem, have rapidly become integrated into all aspects of people's daily lives without any temporal or geographical limitations. The short video platform is designed around the concept of human growth, aiming to improve the type, quality, technological support, and other aspects of short video content.

Social media refers to online platforms and tools that allow users to create, share, and exchange information, ideas, and content with others (Zheng et al., 2022). Compulsive use was initially an important concept in the field of substance abuse research (Heather, 2019). When researchers studied problematic information technology use, they found similar behaviors among users. Therefore, the concept was introduced into the field of information systems research. Compulsive short-form video use in this paper is considered a sub-category of addiction behavior in social media use, but it has unique characteristics not found in other social media addictions. Compared to the internet, social media short-video platform applications typically have distinct characteristics. The videos provided by short video platforms are particularly engaging and create a divide in addiction. Compared to other online activities, users of short video applications are not completely passive recipients of short videos; many have changed from passive to active and become video creators on the platform.

The Internet and other types of information technology are growing quickly. Because of this, short videos are becoming the most exciting and promising part of the new media industry. (Bai et al., 2021). Everything is moving in the direction of video; short videos are gradually replacing the traditional static graphic mode and becoming the main information medium people use daily, and the proportion of grey-haired groups in the short video user group is gradually increasing (X. Lu and Lu, 2019). In today's information society, middle-aged and elderly users often use short videos to express themselves and connect with others. Additionally, many of them enjoy watching short videos and listening to music for entertainment and relaxation. (Bai et al., 2021).

Related Literature Review

The behaviors approaching addiction observed in individuals engaged in social media use are commonly termed social media addiction. This phenomenon is also described as problematic, excessive, or compulsive social media use in academic literature (Sun & Zhang, 2021; Casale, Rugai, & Fioravanti, 2018; Marino, Gini, Vieno, & Spada, 2018). Mark D. Griffiths was among the early scholars to examine social media addiction. Before delving into social media addiction, Griffiths was the first to release studies on internet addiction (1996), online gambling addiction (1996), and online video gaming addiction (2003), according to personal communication with M. Griffiths on November 23, 2021. His research also covered other behavioral addictions such as "gambling, internet use, video game playing, exercise, and work addictions" (Griffiths, 1995; Griffiths, 2000; Griffiths, 2002; Terry, Szabo, Griffiths, 2004; Griffiths, 2005). Griffiths is a trailblazer in the field of social media addiction, and his ideas remain pertinent today.

In 2011, Mark D. Griffiths, together with his colleague Daria J. Kuss, presented a review of literature titled online social networking and addiction - an evaluation of the psychological literature. In their assessment, Kuss & Griffiths (2011) scrutinized research that discussed excessive or problematic use of social media, and also analyzed papers that mentioned usage patterns, user motives for utilizing social media, user personality traits, and the adverse effects of usage, the potential for social media addiction, and its connection to mental disorders. It's noteworthy that there were fewer social media platforms at the time their article was published. However, concerns about the impact of social media use have already begun to emerge.

The existing literature indicates that excessive use of social media may result in social media addiction (Griffiths & Pontes, 2014). However, as additional studies on social media addiction are conducted, inconsistencies and disparities in results are becoming more apparent. Furthermore, research on social media addiction has predominantly centered on the adverse impacts of social media usage (Simsek, Elciyar, Kizilhan, 2018). For example, several studies have suggested that excessive use of social media could be correlated with diminished self-esteem (Hou et al., 2019), heightened levels of anxiety (Keles, McCrae, & Grealish, 2020), depression (Shensa et al., 2017), and inferior academic performance (Hou et al., 2019); however, certain studies have failed to replicate these findings (Shensa et al., 2017). As previously indicated, it is imperative to advance our understanding of social media addiction to promote its safer usage.

According to the biopsychosocial approach, social factors contribute to social media addiction. Daily et al. (2019) identified four social factors affecting social media addiction: gender, frequency and intensity of social media use, the degree to which social media meets user needs, and social comparison behavior. The study by Daily et al. (2019) concluded that gender was not a significant predictor of social media addiction. However, other studies have shown gender variation in social media use. Men are more likely to be addicted to gambling, gaming, and pornography, while women are more likely to be addicted to social media, texting, and online shopping. In addition to Twitter, Instagram, Snapchat, and Facebook, Daily et al. (2019) examined social media intensity, finding that intense Twitter, Snapchat, and Facebook usage predicts social media addiction, whereas Instagram did not emerge as a significant predictor despite its widespread use.

Research into the impact of short videos has grown into a significant sub-field in social media research. In light of the foregoing, this paper will organize the literature on elderly short-video addiction, summarize the main content and research trend of short-video addiction as a sub-category of social media, and conduct a highly relevant academic focus on the research literature on short-video and addictive use. The purpose of this research is to address the following steps using (CiteSpace 5.7.R1 software) and bibliometrics from 2012 to 2023. Central to this research are three pivotal inquiries.

- (1) To identify the number of published articles on short video addiction among the elderly over time.
- (2) To identify the main contributor to research on short video addiction among the elderly.
- (3) To identify the research hotspots and research frontiers of short video addiction among the elderly. These three inquiries collectively shape the analytical framework of the present study.

Methods

The database(s) selection is required to collect bibliometric data. This is done to clarify and purify the bibliographic data, or at the very least to refine it. Online resources like Web of Science (WoS), Scopus, and PubMed have become the standard for literature searches and medical/scientific map research. To maintain the highest standards in scientific literature, these databases offer scholars comprehensive and trustworthy publication information. WoS is frequently chosen as the primary search tool by scholars due to its comprehensive subject coverage and inclusion in reputable scientific journals. By utilizing WoS, Mongeon and Paul-Hus (2016) suggest reducing the likelihood of missed articles. Karakose et al (2023) selected from the WoS Core Collection as a source of data, which is one of the world's most extensive

sources of research data across multiple disciplines and covers a wide range of high-quality scientific journals.

This current study employs the main database of Web of Science (WOS) as the basis, with "addiction behavior", "elderly" and "short video platforms" as subject terms, to address the research gaps, development context, and frontiers of addiction behavior in short video applications. A total of 16,737 documents were found after running the search on the selected subject terms. We then chose "article" and "review" from Document Kinds of WOS to narrow the search and received 16,474 documents. Internet addiction refers to a behavioral problem characterized by excessive and compulsive use of the Internet, leading to negative consequences and impairment in various aspects of life (Siste et al., 2021). The short-video addiction studied in this research is a subset of Internet addiction. Short video applications (abbreviated as SVs) are one of those Internet activities that are excellent for viewing on mobile phones and for sharing captured videos. Therefore, the behavior addiction of SVs is part of Internet addiction. Finally, the keyword "internet addiction" in the microcosm of the citation subject was chosen to narrow the search subject, which then produced 186 documents. Articles on behavioral addiction began to emerge in 1998 as identified by deducing the literature's chronological frame. As a result of reading the articles from 2002, 2004, 2008, and 2010, we eliminated 5 unrelated articles and ultimately collected 181 literature data. Thus, the literature selection is characterized as occurring between 2012 and today. A knowledge map of addiction behavior in SVs is presented in the following sections for the purpose of analyzing each research question.

Discussions

1. Identifying the number of published articles on short video addiction among the elderly over time

This study analyzed literature published between 2012 and 2023 to determine the number of papers on addiction behavior in SVs. Figure 1 demonstrates that the number of published articles increased annually, indicating a growing scholarly focus on addiction behavior. From 2014 onwards, there was a rapid annual increase, suggesting an ongoing improvement in addiction research. The rise of information technology has accelerated the accessibility and widespread use of social networks like short videos. This indicates a growing interest in the study of short video addiction.

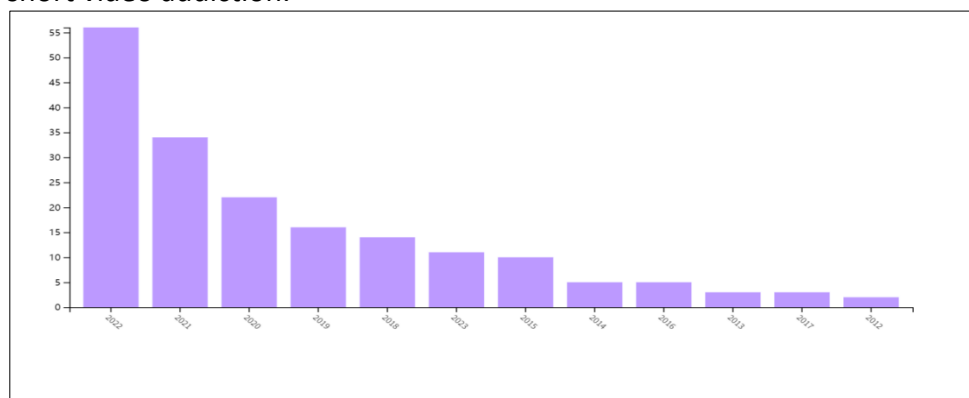


Figure 1. Temporal Distribution Map

2. Identifying the main contributor to research on short video addiction among the elderly

This study used CiteSpace software to analyze the national contribution of literature data. The study examined the period of 2012–2023, with a one-year time slice. The country was chosen as the node, and the analysis was run to visualize the national contributions using the default parameters. Subsequently, a national distribution map was produced (see Figure 2). The study also generated a histogram based on the data from the national distribution map to intuitively analyze the literature contribution of each nation. The top eight most productive countries in terms of number of publications are listed in Figure 3. The People's Republic of China ranks first with 35 publications, followed by the United States, Australia, Turkey, and England, in that order.

With a centrality of 0.37, it is clear that China is leading in the advancement of addiction behavior studies in SVs. The short video addiction development trend in China is positive, and the rich research outcomes are a result of the importance of national policy development, rendering the strong penetration rate of short video applications. An example of this is the 14th Five-Year Plan for the Popularization of Science and Technology (16 August 2022) suggested by the Ministry of Science and Technology in China. The National Radio and Television Administration's 14th Five-Year Plan for the Development of Radio, Television, and Network Audiovisual was published on 2 November 2021, which proposed the development of new service models such as short video and network live broadcasts using emerging media communication methods such as the Internet and mobile Internet, as well as broadening the channels and ways of going global.

The latest data from CNNIC shows that the number of people using short video platforms in China has continued to grow from 2018 to 2022. In December 2022, 77.7 million users started watching short videos, bringing the total to 1,011.85 million, up from December 2021. This marks a growth rate of 4.3%, pushing the online video utilization rate to 94.8%. The market size is expanding, and the integration of short videos with news, e-commerce, and other sectors has sped up, leading to greater information spread and content improvement.

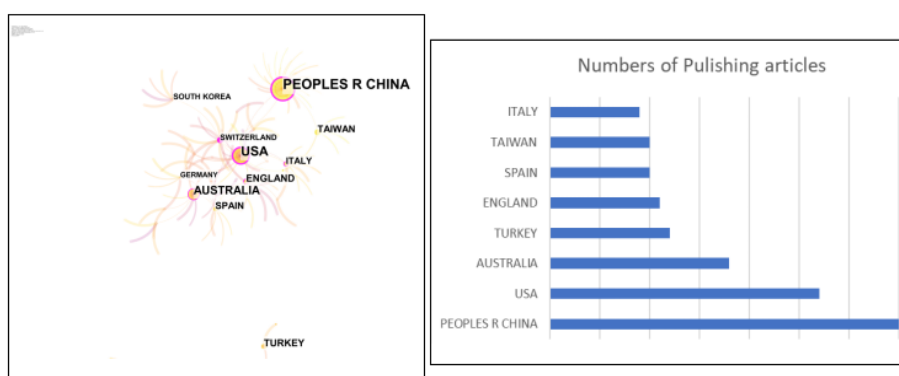


Figure 2. National Distribution Map

Figure 3. Number of Publishing Articles

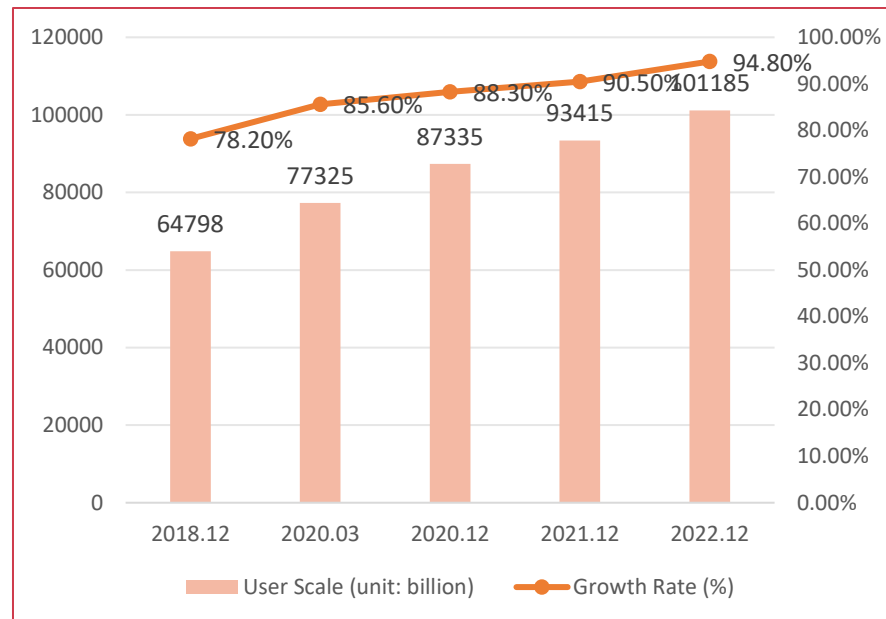
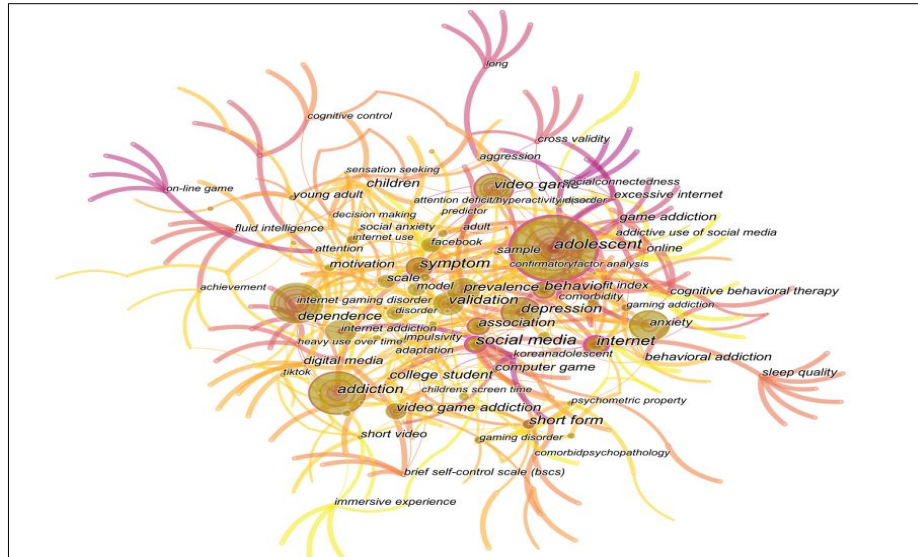


Figure 4. Short Video User Scale and Growth Rate from 2018.12 to 2022.12 in China (Source: CNNIC,2023)

3. Identifying the research hotpots and research frontiers of short video addiction among the elderly

A keyword analysis is the most common way for determining current research subjects and future directions. With the help of CiteSpace, we separated the period from 2012–2023 to learn more about our data and chose a time slice of one year. After choosing the country as the node, we ran Go and visualized the national contributions using the default parameters (as shown in Figure 5). The literature under consideration covers the period from 2012 to 2023, resulting in a total of 317 nodes ($N=317$) and 482 connecting lines ($E=482$). The network modularity degree, denoted as Modularity Q , was found to be 0.6457. Additionally, the mean silhouette value was calculated to be 0.8485. There is a prevailing consensus that a value of $Q>0.3$ indicates a significant cluster structure, while a value of $S>0.5$ suggests a respectable cluster and a value of $S>0.7$ indicates a compelling cluster, according to the study by Chen et al. (2015). Hence, the clustering structure exhibited by the term cograph can be deemed both acceptable and substantial, thereby indicating a high level of reliability.



The study shows that the interest in researching short video addiction has increased significantly since 2015, based on the analysis of keyword grouping and published articles. This is indicated in Figure 2.2.3. To gain a general and more comprehensive understanding of the main keywords, the top 20 keywords were collected by ranking their count and centrality (Table 1). The word "adolescent" was used the most, followed by "addiction." This shows that a lot of research is about teenage addiction, like how TikTok affects how teens feel about using it, and how using phones and video games too much can make teens less happy and affect their relationships with their parents (Tian et al., 2022; Ye et al., 2022).

Table 1
Document Type

Key Words	Count	Centrality	No	Key Words	Count	Centrality	Key Words
1	adolescent	66	0.24	11	symptom	21	0.22
2	addiction	46	0.15	12	behavior	20	0.12
3	internet gaming disorder	40	0.03	13	social media	19	0.15
4	video game	33	0.15	14	association	19	0.25
5	depression	32	0.11	15	video game addiction	17	0.1
6	anxiety	32	0.04	16	Facebook	16	0.09
7	prevalence	27	0.06	17	scale	15	0.08
8	internet addiction	25	0.02	18	model	15	0.07
9	validation	24	0.1	19	disorder	13	0.06
10	internet	22	0.22	20	short form	11	0.04

Source: By authors

The keywords for addiction behavior in the SVs studies are "adolescent", "addiction", "internet gaming disorder", "video game", and "depression". A few keywords, such as "short video problematic use", "ecological systems theory", "gender and family", "excessive use", and so on also started showing up in 2023 even though their co-occurrence count is low. The promotion of information technology updates to short video applications has generally been the focus of research on short video addiction, but it has recently expanded to include more specific research topics like intention, short video pragmatic use, engagement theory, TikTok, immersive experience, and so forth. In general, this information offers suggestions for academics doing literature evaluations of works in particular fields.

In addition, we combined all data between 2012 and 2023 to look for any burst keywords. A burst keyword demonstrates the phenomenon in which any keyword appears repeatedly during a specific time period. This information not only reveals the evolution of research hotspots over time, but also indicates recent research trends and may predict future ones. With the default setting of $\gamma=0.3$ and a minimum duration of 2, 25 keyword breakout words were then set. Those words were gathered and ranked by appearance year, illuminating the research hotspots in each time period (as shown in Figure 6). Without a doubt, scholars' attention has been drawn to behaviour addiction and its associated characteristics since 2012 and will continue as so in the future.

Therefore, this study is pertinent to current research areas and merits more investigation. It is important to make it clear that additional burst keywords could appear or perhaps

disappear at any time in the near future for any cause. Figure6 reveals, however, that the peak years for behavioral addiction were in 2016 to 2020. This does not necessarily imply that future addiction behavior research will stagnate. Even so, it shows how three publications have favored certain themes throughout time. Numerous important papers on addiction behavior have been published for recent short video research, including studies on the addiction behavior of the short-form video app TikTok (Qin et al., 2022), the drivers and consequences of short-form video (SFV) addiction amongst adolescents in China (Mu et al., 2022), the prevalence of behavioral addictions and their relationship with stress and anxiety (Hakami et al., 2021), and so on. Therefore, behavioral addiction research may be developing continuously, but not in these three publications.

CiteSpace's Cluster View was used to better comprehend the research hotpots of addiction behavior in SVs, and the Log Likelihood Ratio (LLR) technique was employed to cluster 10 subjects (Figure 7). CiteSpace offers two indices based on the network structure and the clarity of the clustering: Modularity Q and Mean Silhouette (S). These two indices can be used as a benchmark for evaluating the atlas's drawing power. According to Chen et al. (2015), if $Q > 0.3$, the split Clusters are significant and their value is in the range of [0,1]. Clustering is typically regarded as reasonable when S is greater than 0.5. The cluster graph is significant ($Q = 0.6457 > 0.3$), and the clustering result is deemed reasonable ($S = 0.5485 > 0.5$). The study examined ten clusters representing research on addictive behavior: #0 internet gaming disorder scale-short form, #1 short video, #2 adaptation, #3 attention deficit hyperactivity disorder, #4 gambling, #5 short-form video application, #6 regression analysis, #7 alcohol, #8 brain development, and #9 vocational school.

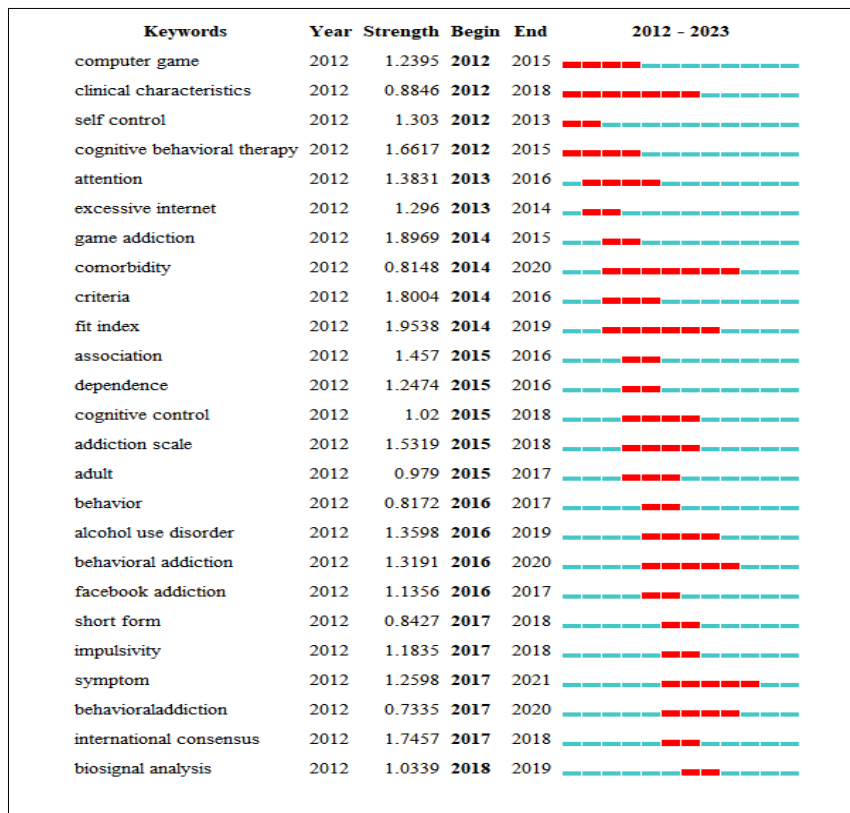


Figure 6. Top 25 Keywords with the Strongest Citation Bursts

The development and use of short videos are the main subjects of short video clustering, focusing on video games and Internet addiction (F. Rehbein et al., 2013), generation of video content (Reese et al., 2015), short video applications (Li, 2019), and short video addiction (Zhang et al., 2019). These clusters show where short video addiction research is concentrated and how it has developed. It addresses a variety of topics, including short video addiction, gambling addiction, alcoholism, young person addiction, and many others.

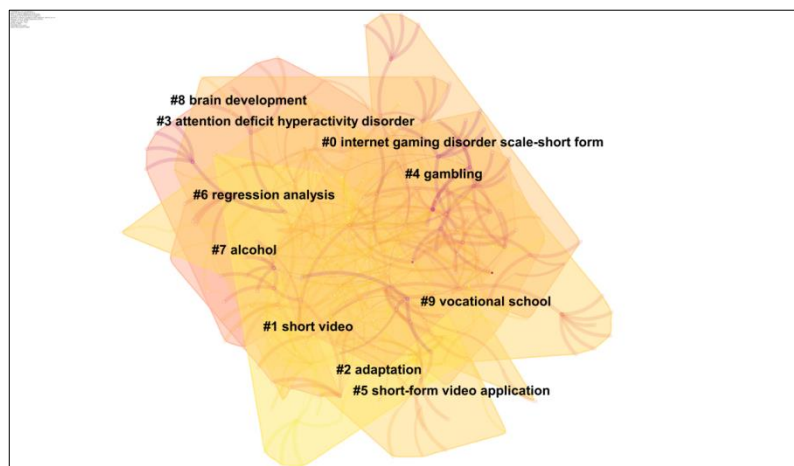


Figure 7. Clustering View Map

The study content keeps getting deeper and bigger, offering both theoretical and practical help for the creation, use, and administration of short videos. From the adolescent point of view, a theoretical model of adolescent addiction to short video apps was created to test UGC perception and it was found that daily life boredom has a significant positive effect on the use of short video apps (Lu et al., 2022). Individual factors were found to contribute to adolescent addiction such as gender, age, and family environment. Tian et al. (2022) found that the activation of users' perceived delight and sense of withdrawal is one of the ways that short-form video features contribute to addiction. In order to get a general and more in-depth understanding of addictive behaviour, Qin et al. (2022) investigated the effects of TikTok's technological environment elements on adolescents' internal perceptions of their online experiences, which in turn led to TikTok addictive behavior. Although excessive viewing of short videos in life has a realistic pertinence, in the field of information systems, the negative impact of addictive use of short videos on the physical and psychological aspects of the elderly has not been fully studied (Nyamadi et al., 2020).

Conclusions

This research is important because it sheds light on the often-neglected issue of short-video addiction in the elderly population. Understanding addiction behavior in the context of short videos is crucial due to the widespread popularity of such applications, especially in countries like China, where policies promote their development. The research identifies the number of published articles over time and assesses the main contributors to the field, with China leading in research output. Furthermore, a keyword analysis identifies research hotspots and frontiers, emphasizing topics like adolescent addiction, Internet gaming disorder, and video games. The study reveals a shift in focus over time, from general information technology updates to more specific topics such as TikTok, immersive experience, and intention. The identification of burst keywords highlights evolving research trends and provides insights into

future areas of investigation. The study contributes to the understanding of short video addiction by offering a knowledge map that analyzes research questions over time. It also employs CiteSpace software to visualize national contributions, showcasing China's leadership in this field. The findings provide valuable insights for scholars, policymakers, and practitioners interested in addiction behavior related to short videos. Therefore, there are opportunities to continue this research in this evolving field. Furthermore, future research would benefit from integrating qualitative data to gain a deeper understanding of the elderly's experiences with short video addiction.

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