

## PAPER

# The Role of Mobile Technologies in Tracking Cyberbullying Trends and Social Adaptation among Teenagers

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## ABSTRACT

This study aimed to investigate the role of mobile technologies in tracking cyberbullying trends and promoting social adaptation among teenagers through a comprehensive bibliometric analysis. The study sought to identify key trends, influential factors, and potential intervention strategies in this rapidly evolving field. A systematic review following PRISMA guidelines was conducted, analyzing 64 documents from the Scopus database published between 2014 and 2024. The methodology employed bibliometric analysis techniques, including co-occurrence networks, bibliographic coupling, and keyword analysis. The results revealed a significant increase in research on cyberbullying and mobile technologies over the past decade. The analysis identified several prominent clusters, including the prevalence of cyberbullying, the role of social media platforms, and the effectiveness of intervention strategies. Gender and age emerged as influential factors in cyberbullying experiences and behaviors. The accessibility and ubiquity of mobile devices were found to play a crucial role in cyberbullying trends. The findings emphasize the importance of developing evidence-based approaches that leverage mobile technologies for intervention. Comprehensive educational programs and innovative approaches, such as chatbot-based coaching interventions, showed promise in reducing cyberbullying and promoting positive social adaptation. The study underscores the complex and multifaceted nature of cyberbullying, necessitating an interdisciplinary approach integrating insights from psychology, sociology, and computer science. The development of specialized assessment tools and the use of machine learning algorithms for detecting cyberbullying incidents highlight the increasing sophistication of research methodologies in this field. Future research should focus on longitudinal studies and the development of innovative, evidence-based intervention strategies.

## KEYWORDS

cyberbullying, mobile technologies, social adaptation, bibliometric analysis, adolescents

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## 1 INTRODUCTION

Mobile technologies have become an integral part of modern life, particularly among teenagers, revolutionizing the way they communicate, learn, and interact with the world [1]. Smartphones, tablets, and other mobile devices offer unprecedented access to information and social connectivity, shaping adolescents' social experiences and development [2]. These technologies provide platforms for self-expression, identity formation, and peer interaction, which are crucial aspects of teenage development [3]. However, the pervasive use of mobile technologies has also introduced new challenges, particularly in the realm of cyberbullying and online harassment [4]. The constant connectivity and anonymity afforded by mobile devices can facilitate negative behaviors, making it easier for bullying to occur beyond traditional school settings [5].

At the same time, mobile technologies offer innovative solutions for tracking and preventing cyberbullying [6]. Advanced algorithms and machine learning techniques can be employed to detect and flag potentially harmful content or behaviors in real time [7]. Furthermore, mobile technologies play a dual role in teenagers' social adaptation. While they can contribute to social isolation and anxiety in some cases, they also provide valuable tools for building social networks, accessing support systems, and developing digital literacy skills essential for navigating the modern world [8].

However, the ubiquity and constant connectivity of smartphones and tablets have extended the reach of bullying beyond physical spaces, creating a 24/7 vulnerability for potential victims [9]. This perpetual access has blurred the boundaries between online and offline interactions, making it difficult for teenagers to escape harassment [10]. The anonymity offered by mobile platforms can embolden bullies, leading to more severe and frequent incidents of cyberbullying [11]. Moreover, the rapid spread of information through mobile social media apps can amplify the impact of cyberbullying, potentially causing widespread reputational damage and psychological distress to victims [12]. The evolving nature of mobile technologies also presents challenges for parents, educators, and policymakers in keeping up with new forms of cyberbullying and developing effective prevention strategies [13]. Additionally, the addictive nature of mobile devices can lead to excessive screen time, potentially exposing teenagers to more opportunities for negative online interactions [14]. These challenges underscore the complex role of mobile technologies in the cyberbullying landscape and highlight the need for multifaceted approaches to address this issue [15].

Despite the growing body of research on cyberbullying and mobile technologies, there remains a significant gap in understanding the dynamic interplay between technological advancements and emerging cyberbullying trends among teenagers [16]. While studies have explored various aspects of online harassment, there is limited comprehensive analysis of how mobile technologies specifically influence both the prevalence and nature of cyberbullying [17]. Moreover, the rapid evolution of mobile platforms and social media applications creates a constantly shifting landscape that challenges existing research paradigms [18]. There is also a lack of longitudinal studies that track the long-term effects of mobile technology use on teenagers' social adaptation and resilience to cyberbullying [19]. This study addresses these gaps by employing a bibliometric analysis to synthesize current research trends and identify emerging patterns in the field. By examining the intersection of mobile technologies, cyberbullying, and social adaptation, this study provides a crucial foundation for developing more effective, technology-driven interventions and policies.

The objective of this study is to explore the role of mobile technologies in tracking cyberbullying trends and promoting social adaptation among teenagers. The study aims to analyze key research trends, identify influential contributions, and assess the

potential of mobile technologies for detecting and addressing cyberbullying through a bibliometric analysis of existing literature. Following the research objectives, the current study has two research questions:

1. What are the key trends and influential factors in the research on the use of mobile technologies for tracking cyberbullying among teenagers?
2. How can mobile technologies be effectively utilized to support evidence-based intervention strategies that promote positive social adaptation and mitigate the psychological impacts of cyberbullying on teenagers?

## 2 METHODOLOGY

This systematic approach aligns with the PRISMA guidelines for conducting comprehensive and reproducible literature reviews [20], [21]. The initial search was conducted using the keywords “Cyberbullying AND Mobile technologies,” yielding 164 documents in the Scopus database. The inclusion criteria were applied sequentially to refine the results. Publications were limited to the years 2014–2023, reducing the pool to 134 documents. Subject areas were restricted to Computer Science, Social Sciences, Psychology, Engineering, Environmental Science, and Business, Management, and Accounting, further narrowing the results to 107 documents. Document types were confined to articles, book chapters, and reviews, resulting in 71 documents. Language was limited to English, leaving 65 documents. Finally, only publications in the final stage were included, resulting in a final sample of 64 documents for analysis. These criteria ensured that the selected literature was recent, relevant to the multidisciplinary nature of the research topic, and of high quality in terms of peer-reviewed content. The exclusion criteria, by extension, removed documents outside the specified date range, subject areas, document types, language, and publication stages. Figure 1 below illustrates the inclusion and exclusion criteria.

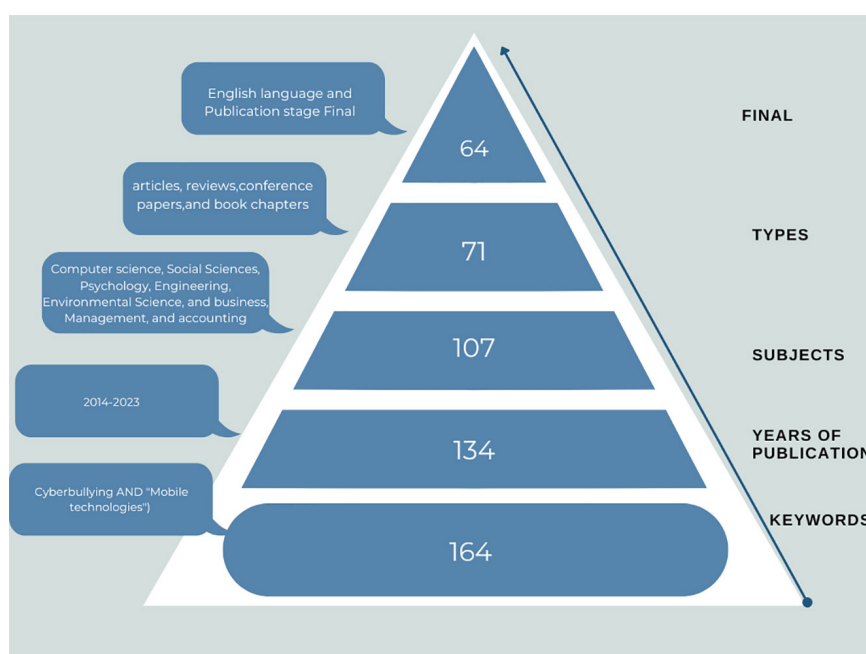


Fig. 1. Inclusion and exclusion criteria of PRISMA statement 2020

## 2.1 Descriptive

Table 1 provides a comprehensive overview of the bibliometric characteristics of the selected records for the study on mobile technologies in tracking cyberbullying trends and social adaptation among teenagers. The dataset spans from 2014 to 2024, encompassing a total of 64 documents from 53 unique sources, including journals and books. Despite an annual growth rate of 0%, indicating a stable publication rate, the average age of documents is 5.02 years, suggesting a relatively recent body of literature. The high average of 27.28 citations per document indicates the significant impact and relevance of the selected publications within the field. The analysis identified 351 Keywords Plus and 205 Author's Keywords, highlighting the diverse range of topics and concepts covered in the literature. A total of 181 authors contributed to these documents, with 11 single-authored publications, reflecting a mix of individual and collaborative research efforts. The average of 2.89 co-authors per document and 25% international co-authorships demonstrate a strong collaborative approach in the field, with a notable level of global cooperation. The document types are predominantly articles (44), followed by book chapters (16) and reviews (4), providing a varied mix of research outputs. This distribution of document types ensures a comprehensive coverage of both primary research findings and broader synthesized knowledge in the field of cyberbullying and mobile technologies among teenagers.

**Table 1.** Main information of records

Description	Results
Timespan	2014:2024
Sources (Journals, Books, etc.)	53
Documents	64
Annual Growth Rate %	0
Document Average Age	5.02
Average citations per doc	27.28
References	3558
Keywords Plus (ID)	351
Author's Keywords (DE)	205
Authors	181
Authors of single-authored docs	11
Single-authored docs	11
Co-Authors per Doc	2.89
International co-authorships %	25
article	44
book chapter	16
review	4

In addition, Figure 2 illustrates the annual production of articles selected from the sources, spanning from 2014 to 2024. The graph reveals fluctuations in research output over the decade, with notable trends and patterns. The early years of 2014 to 2016 show an initial increase in publications, with the number of articles rising from four in 2014 to seven in both 2015 and 2016. This suggests a growing interest in the field of

mobile technologies and cyberbullying among teenagers during this period. However, there was a notable dip in 2017, with only three articles published. The following years saw a recovery and gradual increase in research output, reaching a peak of 10 articles in 2021. This peak could indicate a heightened focus on the topic, possibly influenced by the increased reliance on digital technologies during the global COVID-19 pandemic. The years 2022 and 2023 show a decline in publications to five and four articles respectively, which might suggest a stabilization or slight decrease in research intensity. Interestingly, the data for 2024 already shows four publications, which is noteworthy given that the year is not yet complete at the time of this analysis. This could potentially indicate a resurgence of interest in the topic or simply reflect early publications for the year. Figure 2 below illustrates the annual production of documents.

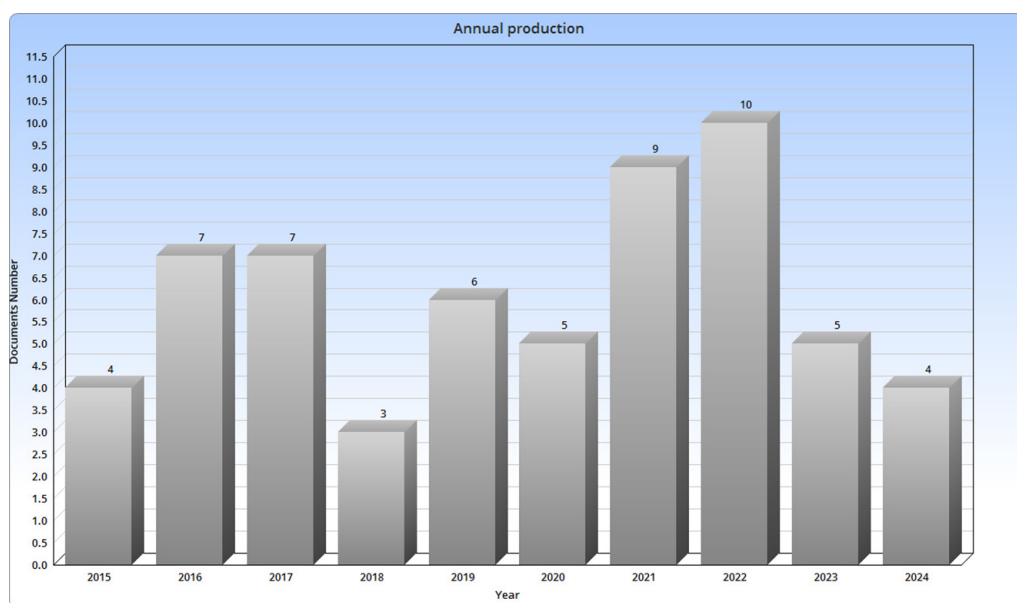


Fig. 2. Annual production of documents

Furthermore, Figure 3 demonstrates the major sources contributed to the production of documents. The *International Journal of Environmental Research and Public Health* emerges as the leading source with four articles, underscoring the interdisciplinary nature of the topic and its relevance to public health. *Frontiers in Psychology* follows closely with three articles, indicating the significant psychological aspects of the research. Several prestigious journals, including *Computers in Human Behavior*, *Interactive Technology and Smart Education*, *Journal of Interpersonal Violence*, *Perspectives on Psychological Science*, and *Psicothema*, have each contributed two articles to the dataset. This distribution reflects the multifaceted nature of the research, spanning technology, education, psychology, and violence studies. Notably, a book titled *Reducing Cyberbullying in Schools: International Evidence-Based Best Practices* also contributed two chapters, highlighting the practical and applied focus of some research in this field. The list also includes journals with single contributions, such as the *Asia-Pacific Education Researcher*, *Asian Journal of Psychiatry*, and *British Journal of Educational Technology*, which add geographical and disciplinary diversity to the research landscape. This diverse range of sources underscores the complex, interdisciplinary nature of research on cyberbullying and mobile technologies, involving perspectives from environmental science, psychology, technology, education, and mental health.

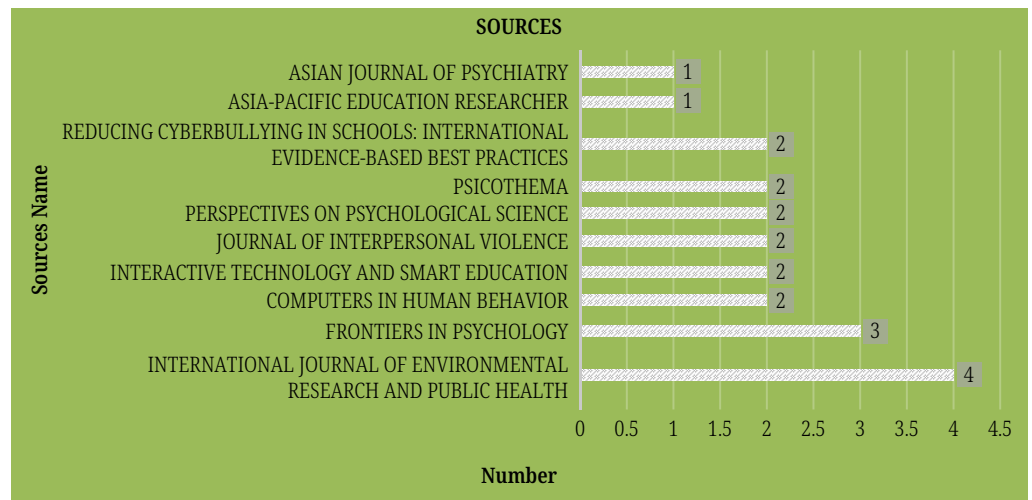


Fig. 3. Relevant sources

### 3 RESULTS

Table 2 describes the most cited articles in the study, as analyzed using the VOS viewer software for bibliometric data visualization. The most influential paper, authored by [22] and published in the *Journal of Child Psychology and Psychiatry and Allied Disciplines*, has garnered 306 total citations, with an impressive 27.82 citations per year and a normalized citation score of 4.00. Following closely is [23] publication in *Perspectives on Psychological Science*, accumulating 151 citations and a high normalized citation score of 4.02. Stockdale LA’s 2018 article in *Computers in Human Behavior* has received 130 citations, with a strong 18.57 citations per year. Other notable works include Waytz A’s 2018 paper in *Perspectives on Psychological Science* (105 citations), [8] article in *European Journal of Criminology* (91 citations), and [24] publication in *Journal of Interpersonal Violence* (77 citations). The list also includes impactful works by [7], [25], Festl R (2016), and [23], each contributing significantly to the field with citation counts ranging from 50 to 70. These highly cited papers represent key contributions to the understanding of cyberbullying, mobile technologies, and their impact on teenagers, spanning various disciplines and journals.

Table 2. Most cited articles

Paper	Total Citations	TC per Year	Normalized TC
Livingstone S, 2014	306	27.82	4.00
George MJ, 2015	151	15.10	4.02
Stockdale LA, 2018	130	18.57	2.95
Waytz A, 2018	105	15.00	2.39
Powell A, 2020	91	18.20	3.69
Martinez-Pecino R, 2019	77	12.83	3.18
Savage MW, 2017	70	8.75	1.91
Monks CP, 2016	54	6.00	1.54
Festl R, 2016	54	6.00	1.54
Edwards L, 2016	50	5.56	1.43





“cyberbullying” (51.211), “internet” (50.922), and “computer crime” (44.483) show high betweenness scores, suggesting their role in bridging different research themes. Demographic terms such as “adolescent,” “female,” and “male” demonstrate balanced importance across all metrics, reflecting their consistent relevance in the studies. The term “cyberbullying” shows moderate importance across all metrics, while “social media” has lower scores, possibly indicating its role as a more specific context rather than a central theme. Terms related to psychological and behavioral aspects, such as “psychology,” “social behavior,” and “mental health,” show lower scores across all metrics, suggesting they may be more peripheral or specialized topics within the broader research landscape. This co-word network analysis reveals a complex interconnection of technological, social, and human-centered concepts in the field, with a clear emphasis on the human aspect of cyberbullying research.

**Table 3.** Co-word network analysis

Node	Betweenness	Closeness	Page Rank
computer crime	44.483	0.012	0.018
cyber bullying	51.211	0.012	0.019
cellular telephones	0	0.009	0.008
internet	50.922	0.017	0.046
adolescent	34.315	0.017	0.05
bullying	17.41	0.016	0.044
female	28.701	0.017	0.047
male	27.659	0.017	0.046
human	241.814	0.02	0.065
humans	93.308	0.019	0.059
child	6.307	0.015	0.031
cyberbullying	39.534	0.016	0.04
social media	13.012	0.015	0.024
crime victim	6.795	0.015	0.037
adolescent behavior	3.253	0.015	0.023
crime victims	6.795	0.015	0.037
adult	1.943	0.014	0.017
article	4.307	0.015	0.031
mobile phone	2.801	0.014	0.026
aggression	0.275	0.013	0.013
technology	1.751	0.013	0.015
psychology	7.452	0.015	0.026
social behavior	1.835	0.014	0.022
mental health	0.042	0.013	0.014
prevalence	0.042	0.012	0.009

Moreover, Table 4 presents an analysis of thematic clusters in the research on mobile technologies, cyberbullying, and social adaptation among teenagers, using Callon’s centrality and density measures along with ranking and frequency data.



The “cyberbullying” cluster emerges as the most prominent, with the highest Callon Centrality (0.861) and cluster frequency (55), indicating its central role in the research field and its strong connections to other themes. However, its relatively low Callon Density rank (7) suggests that while it’s a broad and central topic, the internal cohesion of research within this cluster might be less intense. The “social media” cluster shows moderate centrality (0.431) and density, ranking 6th and 5th, respectively, with a frequency of 28, highlighting its significant but not dominant role in the research landscape. Interestingly, the “prevention” cluster, despite having no centrality, shows the highest Callon Density (108.333) and density rank (7), suggesting a highly focused and internally cohesive research area, albeit with limited connections to other themes. The clusters of “anonymity,” “cyber victimization,” and “digital citizenship” share similar characteristics, with no centrality but moderate density, indicating specialized research areas that are somewhat isolated from the main discourse. The “social networks” cluster, while showing no centrality, has a high-density rank (6), suggesting a well-defined but possibly niche research area. This thematic cluster analysis reveals a research field dominated by the broad theme of cyberbullying, with several specialized sub-themes that vary in their centrality to the overall discourse and their internal cohesion.

**Table 4.** Thematic clusters

Cluster	Callon Centrality	Callon Density	Rank Centrality	Rank Density	Cluster Frequency
cyberbullying	0.861	40.662	7	1	55
social networks	0	62.5	3	6	4
social media	0.431	55.521	6	5	28
anonymity	0	50	3	3	2
cyber victimization	0	50	3	3	2
prevention	0	108.333	3	7	9
digital citizenship	0	50	3	3	2

## 4 THEMATIC CLUSTERS

### 4.1 Mobile technologies and their role in tracking cyberbullying

The research on mobile technologies and their role in tracking cyberbullying among teenagers has revealed several key trends and influential factors across various settings. These studies highlight the evolving nature of cyberbullying in the digital age and the complex interplay between technology use and online aggression. One of the primary trends observed is the increasing prevalence of cyberbullying as mobile technology becomes more accessible to adolescents. Livingstone and Smith [3] noted a significant rise in online risks, including cyberbullying, faced by children and adolescents between 2008 and 2014. This trend is further supported by [26], who found that while overall levels of bullying remained relatively stable, the incidence of online bullying increased, particularly among younger teens across seven European countries.

In addition, the accessibility and ubiquity of mobile devices play a crucial role in this trend. [27] identified key measures in technology access, online routine behaviors, and target suitability as significant predictors of both cyber and mobile phone-based bullying victimization in Singapore. Similarly, [28] found that Chinese youth who frequently

used certain social network platforms and participated in online gaming were more likely to engage in cyberbullying. Additionally, gender and age emerge as influential factors in cyberbullying experiences. [29] observed that gender and gender stereotype traits influenced the types of cyber victimization experienced through different technologies. [30] found that girls' cyberbullying involvement was linked to more intensive online social activities and higher contact with strangers, while for boys, exposure to antisocial media content predicted higher victimization over time. Table 5 below illustrates the authors on key trends in mobile technologies and cyberbullying research.

**Table 5.** Key trends in mobile technology and cyberbullying research

Author and Year	Settings	Research Focus
Livingstone and Smith (2014)	Review of studies from 2008–2014	Examined trends in online risks, including cyberbullying, faced by children and adolescents
George and Odgers (2015)	Review of studies on adolescents	Explored fears and science behind mobile technology influence on adolescents, including cyberbullying
Festl and Quandt (2016)	Two-wave panel survey of 1817 adolescents aged 13–17 in Germany	Investigated the role of online communication in long-term cyberbullying involvement
Holt et al. (2016)	Nationally representative sample of youth from 9 schools in Singapore	Examined risk factors for cyber and mobile phone-based bullying victimization
Li et al. (2018)	2327 Chinese youths aged 9–22	Explored Internet usage and cyberbullying behaviors and their relationships
O'Neill and Dinh (2015)	Cross-national study of children aged 9–16 in 7 European countries	Investigated mobile technologies and cyberbullying incidence
Wright and Wachs (2020)	456 8th graders from two midwestern U.S. schools	Examined the influence of gender and gender stereotype traits on cyber victimization through different technologies
Jun (2020)	Analysis of national survey data from South Korea over 3 years	Investigated causes of cyberbullying among Korean adolescents

Furthermore, the psychological and social impact of mobile technology use on adolescents is another crucial aspect of this study. [31] explored various fears associated with mobile technology's influence on adolescents, including cyberbullying, and found that the effects are not uniform. Some adolescents may benefit from technology use (e.g., skill-building among shy adolescents), while for others, it may exacerbate existing mental health problems. On the other hand, [32] analyzed national survey data from South Korea and found that the biggest type of cyberbullying among adolescents was verbal abuse, primarily through instant messaging.

#### 4.2 Intervention strategies for cyberbullying among teenage

The research on utilizing mobile technologies to support evidence-based intervention strategies for cyberbullying among teenagers reveals several promising approaches and considerations. One significant trend in the research is the development of comprehensive educational programs that leverage technology. Garaigordobil and Martínez-Valderrey [33] evaluated the Cyberprogram 2.0, an intervention designed to prevent and reduce cyberbullying among adolescents. Their findings demonstrated

that such programs could effectively decrease various types of school violence and aggressiveness. Similarly, Casas et al. [34] described the ConRed program, which focuses on educating students, teachers, and families about cyber-coexistence and cyberbullying prevention. These studies underscore the importance of holistic approaches that engage multiple stakeholders in the educational community.

In addition, innovative use of mobile technologies for intervention is exemplified by Gabrielli et al. [35], who piloted a chatbot-based coaching intervention to promote life skills and mental well-being among adolescents. This approach demonstrates how familiar technologies can be repurposed to deliver targeted support and education, potentially increasing engagement and accessibility for teenagers. Additionally, the role of digital citizenship education in cyberbullying prevention is discussed by Martin et al. [36], who examined student perceptions of technology use and digital citizenship practices. Their findings suggest that educating students about responsible online behavior could be an effective strategy for mitigating cyberbullying risks. This aligns with the work of Gündüz et al. (2020), who investigated students' sensitivity towards cyberbullying, emphasizing the importance of awareness and education in prevention efforts.

Furthermore, several studies focus on assessing and understanding problematic technology use as it relates to cyberbullying. Méndez et al. [37] identified different profiles of mobile phone problem use in relation to bullying and cyberbullying, while Feijóo et al. [38] explored the relationship between cyberbullying involvement and problematic internet use. However, the development of assessment tools is another crucial aspect of effective intervention. Penado et al. [39] constructed and validated a scale for measuring intimate image diffusion among adolescents, providing a valuable tool for identifying and addressing a specific form of cyberbullying. Such instruments can help in early detection and targeted intervention efforts. Table 6 shows the research outputs on the mobile technology-based interventions for cyberbullying prevention.

**Table 6.** Mobile technology-based interventions for cyberbullying prevention

Author and Year	Settings	Research Focus
Garaigordobil and Martínez-Valderrey (2016)	176 adolescents aged 13–15 in Spain	Evaluated the effects of Cyberprogram 2.0, an intervention to prevent and reduce cyberbullying
Casas et al. (2018)	Schools in Spain	Described the ConRed program for educating in cyber-coexistence and cyberbullying prevention
Gabrielli et al. (2020)	Pilot study with 21 adolescents	Evaluated a chatbot-based coaching intervention to promote life skills and mental well-being
Martin et al. (2020)	237 middle school students in the US	Examined student perception of technology use and digital citizenship practices
Méndez et al. (2020)	810 students of Compulsory Secondary Education in Spain	Investigated profiles of mobile phone problem use in bullying and cyberbullying
Gündüz et al. (2020)	747 secondary school students in Turkey	Determined students' levels of sensitivity towards cyberbullying and cyberbullying behavior
Selwyn and Aagaard (2021)	Review of literature	Discussed the implications of banning mobile phones from classrooms on cyberbullying
Penado et al. (2019)	602 adolescents aged 12–19 in Spain	Constructed and validated a scale for measuring intimate image diffusion among adolescents
Feijóo et al. (2021)	3,188 adolescents aged 12–17 in Spain	Explored the relationship between cyberbullying involvement and problematic internet use

Moreover, Peláez-Fernández et al. [40] examined how cyber victimization and core self-evaluations relate to problematic technology use, suggesting that interventions should also focus on building resilience and positive self-concept among teenagers. This approach could help mitigate the psychological impacts of cyberbullying and promote healthier technology use. On the other hand, an interesting perspective is offered by [41], who discuss the implications of banning mobile phones from classrooms. While this approach might seem counterintuitive to using mobile technologies for intervention, it raises important questions about balancing technology use with traditional educational methods and the need for nuanced strategies that consider both the benefits and risks of mobile technology in educational settings. In conclusion, mobile technologies can be effectively utilized in various ways to support evidence-based intervention strategies for cyberbullying. Successful approaches include comprehensive educational programs, innovative use of familiar technologies such as chatbots, digital citizenship education, and tools for assessment and early detection.

## 5 RESEARCH FINDINGS

This study aimed to investigate the role of mobile technologies in tracking cyberbullying trends and social adaptation among teenagers through a comprehensive bibliometric analysis. The research findings provide valuable insights into the key trends, influential factors, and potential intervention strategies in this rapidly evolving field. Regarding the first research question on key trends and influential factors, the bibliometric analysis revealed a significant increase in research on cyberbullying and mobile technologies over the past decade. The co-occurrence network analysis identified several prominent clusters, including the prevalence of cyberbullying, the role of social media platforms, and the effectiveness of intervention strategies. Gender and age emerged as influential factors, with studies such as [29] and [30] highlighting differences in cyberbullying experiences and behaviors between boys and girls. The accessibility and ubiquity of mobile devices were found to play a crucial role in cyberbullying trends, as evidenced by studies such as [27] and [28].

Addressing the second research question on effective utilization of mobile technologies for intervention strategies, the research findings emphasize the importance of developing evidence-based approaches that leverage the potential of mobile technologies. Comprehensive educational programs, such as the Cyberprogram 2.0 evaluated by [33] and the ConRed program described by [34], demonstrated effectiveness in reducing cyberbullying and promoting positive social adaptation. Innovative approaches, like the chatbot-based coaching intervention piloted by [35], showcase the potential of familiar technologies in delivering targeted support and education to teenagers.

The findings of this study underscore the complex and multifaceted nature of cyberbullying, necessitating a comprehensive approach that integrates insights from psychology, sociology, and computer science. The thematic cluster analysis revealed several specialized sub-themes within the broader cyberbullying research field, including anonymity, cyber victimization, digital citizenship, and prevention strategies. These sub-themes highlight the intricate interplay between technological, social, and psychological factors in cyberbullying experiences. For instance, the “anonymity” cluster emphasizes the unique challenges posed by the digital environment, where perpetrators can hide their identities, potentially increasing the severity and frequency of bullying behaviors. The “cyber victimization” cluster focuses

on the psychological impacts and coping mechanisms of victims, drawing heavily from psychological research. The “digital citizenship” cluster incorporates sociological perspectives on online behavior norms and education, while the “prevention” cluster combines insights from all three disciplines to develop effective intervention strategies.

The development of specialized assessment tools, such as [39] scale for measuring intimate image diffusion, demonstrates the increasing sophistication of research methodologies in this field. These tools not only provide valuable resources for early detection and targeted interventions but also contribute to a more nuanced understanding of specific forms of cyberbullying. Furthermore, the integration of computer science perspectives is evident in emerging trends identified in the keyword analysis, such as the use of machine learning algorithms for detecting cyberbullying incidents. This interdisciplinary approach to cyberbullying research and intervention reflects the complex nature of the issue and underscores the need for collaborative efforts across academic disciplines and practical fields to effectively address the challenges posed by cyberbullying in the mobile technology era.

Finally, future research should focus on longitudinal studies to track the long-term effects of mobile technology use on teenagers’ social adaptation and resilience to cyberbullying, as well as the development and evaluation of innovative, evidence-based intervention strategies that leverage the potential of mobile technologies to combat cyberbullying and promote positive social adaptation among teenagers.

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