

## THE PSYCHOLOGICAL EFFECT OF SOCIAL MEDIA USE ON UNIVERSITY STUDENTS' SYSTEMATIC ANALYSIS USING HISTCITE

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### Abstract

**Purpose:** HistCite provides a literature review based on the Web of Science and the results of a systematic literature search focusing on the psychological effects of social media use on university students. This study focuses on the development of social media use, and its relationship to psychological well-being, the motivations and fallacies behind problematic use, and the societal implications of social media usage.

**Design/methodology/approach:** This dataset consisted of 892 publications after screening and supplementation. Bibliometric analyses and network scores were used to sort out the knowledge structures and connections between the literature relevant to this study.

**Findings:** The study summarised four strands of research into the psychological effect of social media use on university students. This study systematically analyzed the relationships between the literature in this area using the HistCite technique, which allowed better identification of research priorities and overcoming research blind spots.

**Research & Practical Implications:** This study systematically demonstrated the relationship between the literature using technology, providing a more precise direction for a subsequent study. What this study offers are a perspective on the effect of social media use on the lives of university students that is both exhaustive and in-depth. Given findings from existing studies and future directions, there is an opportunity to further explore the impact of social media on the psychological well-being of university students.

**Originality/Value:** This paper provides a meaningful guide on conducting bibliometric analysis using technological tools and a direction on research methods for future related studies. This study involves three areas: psychology, marketing, and education. Future research could build on the lessons learned from this study and explore possible cross-disciplinary research methods in addition to research in related areas.

*Keywords:* social media; psychological; university students; HistCite

### 1. Introduction

Social media is a technology tool that operates online, allowing individuals to create and share online content based on personalized relationships (Nurudeen, Abdul, Owusu, Koi & Tanye, 2023). As a follow of Web 2.0, social media has introduced the concepts of "users are producers" and user-generated content on multiple platforms, including Instagram, Netflix, YouTube, Social Networking Sites (SNS), and Twitter (Siepen, 2023). As technology progresses, social media has grown to become a key tool for information sharing and the ability to communicate (Dumford, Miller, Lee & Caskie, 2023). Especially in China, more than one billion users access the Internet primarily through mobile phones (China Internet Network Information Center, 2023). The rise of digital connectivity reflects our increasing reliance on technology to connect and share information and highlights its profound impact on contemporary communication practices. In the new media era, social networks are slowly changing how individuals communicate and share knowledge (Saponzi & Psannis, 2018). Social media has also been identified as a factor in determining an individual's psychological well-being. Young people are particularly affected, who are now more mature due to their early exposure to social media. (Alismaiel. 2023). Compulsory 'social media' and internet use has created several problems for this generation. Although research is only the beginning, social media's influence on psychology has been studied. According to recent research, social media use may cause anxiety, depression, or low self-esteem (Galanis et al., 2023).

Psychological well-being as defined by Warr (1978) can be divided into six dimensions according to Ryff and Keyes (1995). More specifically, psychological well-being is a flexible concept that focuses on how individuals feel about their daily activities (Campbell, 1976). It might range from a negative mental state to a positive state of mind, involving multiple aspects of emotions and perspectives (Raza, 2023). Students aged 18-23 are transitioning from adolescence into adulthood and may experience psychological issues such as loneliness, restlessness, low self-esteem, and social anxiety (Yang Jing, 2020; McBeath, 2016; Yang, Wang, Lee, Lin, Hsieh & Lin, 2022). In this case, using social media provides emotional expression and information gathering. However, it can restrict real-world interactions. As university students increasingly incorporate social media into academic and social life (Mastrodicasa & Metellus, 2013), accurately perceiving time spent on these platforms remains challenging. This lack of awareness may lead students to imitate peers, assuming such behavior is normative (Pittman & Reich, 2016; Dumford et al., 2023). In 2023, Facebook remains prominent, with 2 billion daily users, while TikTok gains popularity among students (Breuer et al., 2023; Schellewald, 2023). Social media usage might be associated with negative effects on psychological well-being, time management and self-esteem. Some studies have shown that Facebook can increase envy (Dumford et al., 2023). As social media expects individuals to present a perfect version of themselves, excessive social media usage related to low self-esteem (Hawi & Samaha, 2017). University students might suffer nomophobia, characterized by anxiety when separated from their mobile phones, negatively affecting academic performance and psychological well-being (Zhang & Yu, 2022).

After the preliminary research, it was found that despite many literature reviews in the relevant study, replicable systems have yet to be analyzed. A systematic literature review can be conducted using bibliometric mapping to solve this issue, such as HistCite, a method that allows for a more

intuitive and effective literature review (Ullah et al., 2023). This study performed a systematic literature search using HistCite™ Pro version 2.1. It examined the psychological effects of social media users among university students. To determine the relationship between focus, reference, and development, we analysed the gaps found in systematic literature reviews of related areas (Bowri, 2021). This article will elaborate on the following distribution. The research methodology is explained in Chapter 2. It also contains four themes that analyze the psychological effect of social media use on university students. Chapter 3 provides a specific exploration of these four themes, chapter 4 explores future research trends, and Chapter 5 concludes the study.

## 2. Research methodology

### 2.1. HistCite™

Histcite™, which takes its name from the history of cite, is a software package that allows bibliometrics to be visualized and analyzed (Rafiq et al., 2023). Eugene Garfield is credited with the creation of the "Science Citation Index" and the development of the database software "Web of Science". Histcite™ pro 2.0 and 2.1 were subsequently produced to optimise the software. Subsequently, Histcite™ pro 2.0 and 2.1 were produced to optimize the software. Its latest version innovates the startup program while adding a creative innovation for automatically extracting unprocessed data from the distribution of scientific networks (Jacso, 2010; Wu & Cai, 2022).

HistCite™ is used to improve the quality of scholarly research in bibliometrics using a systematic methodology for identifying important and up-to-date publications in the area under study (Musa et al., 2021; Gang & Ahmad, 2023). It helps researchers quickly map the area's history by graphically displaying the relationships among publications through literature found on the Web of Science (WoS), through which the essential and latest significant publications in the area can be located (Li et al., 2018; Pranckutė, 2021). The developers use data taken from the Science Citation Index (SCI) using software, the Local Citation Score (LCS) and the Global Citation Score (GCS). Local Citation Score (LCS) refers to the frequency of concentrated citations of the most frequently cited literature. The Global Citation Score (GCS) can determine citation status, such as frequency, of each paper in SCI (Cao & Alon, 2020). The recognition of typical "innovative fuzzy frontends" by Histcite™ can often be achieved by identifying emerging themes.

### 2.2. Keywords search

In the existing literature, there are cases where researchers use college students and undergraduate students instead of university students, and there are cases where the term mental health replaces psychological. After examining various instances, the study employed the search terms "psychological", "university students" and "social media use" within the Web of Science (WoS). Search for articles limited to the Web of Science core collection using the citation index below: Social Science Citation Index (SSCI), Arts & Humanities Citation Index (A&HCI), Emerging Sources Citation Index (ESCI), Science Citation Index Expanded (SCI-EXPANDED). Searches were performed at 22:19 on 29 December 2023, and 886 articles were retrieved.

### 2.3. Data supplementing

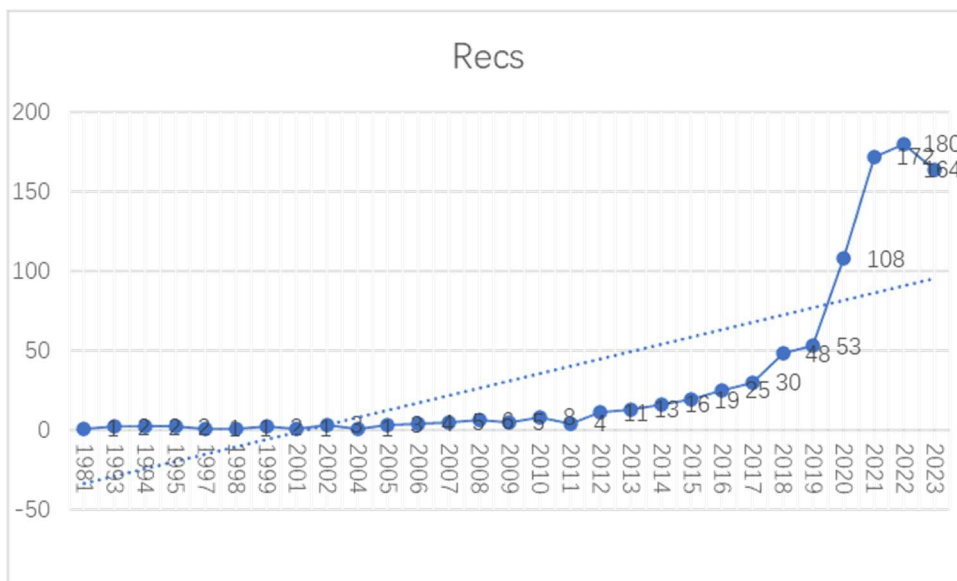
The researcher checked the titles, abstracts, keywords, and full articles in the dataset to ensure that the original dataset was relevant to social media use, university students, and psychological research. After importing 886 articles from Web of Science (WoS) into HistCite and checking for citations, we found that some of the highly cited articles had been searched for by the keywords but not in the imported data. We added six highly cited and essential articles to supplement the data, and the final dataset contained 892 articles.

### 2.4. Yearly output

The volume of research publications is a crucial metric to measure research activity and productivity within an academic domain, such as by individuals, institutions, or countries. Figure 1 visually represents the annual volume of research articles on social media's psychological impact on university students. Since 2012, there has been an unmistakable trend of increasing articles pertinent to our topic area. Although research results saw modest increases from 2012-2021, 2019 saw an unexpected surge of activity, demonstrating its increased importance over this period. 2022 marked a peak year for research output in this domain despite slowing publication growth between 2021-2022. As seen from 2023's publications, there has been a marginal decrease. Regardless, this remains elevated and indicates that social media's psychological impact on university students will continue to be an intense research focus for some time. The "Yearly output" function in HistCite helps readers understand development trends and research hotspots related to related research areas.

**Figure 1**

**Yearly output**

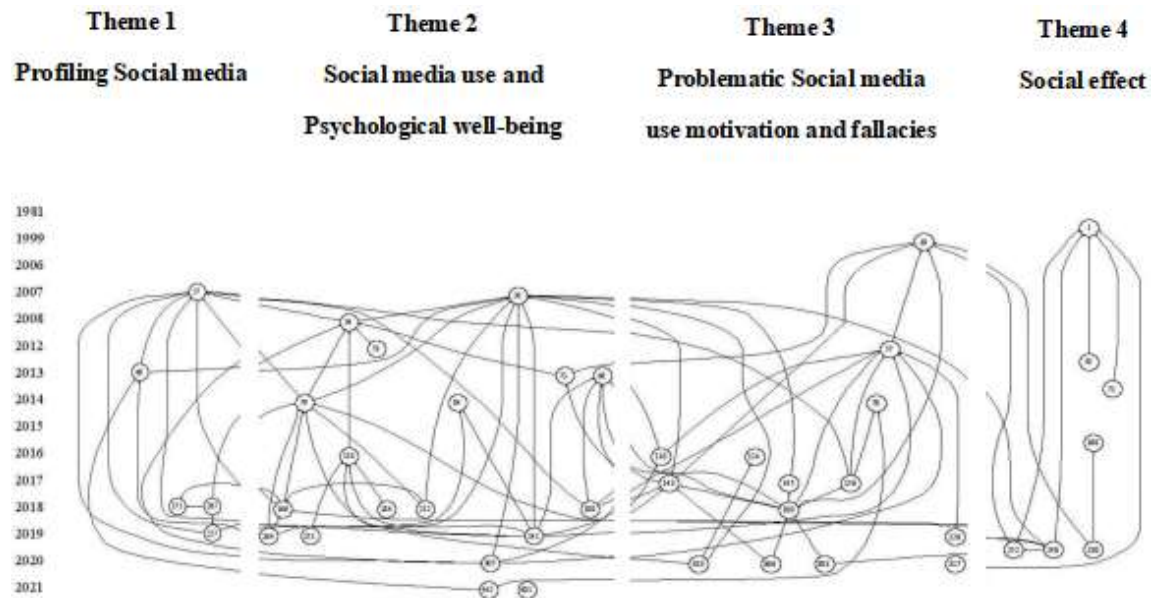


### 2.5. Citation map

Figure 2 shows the citation map generated by HistCite™. Table 1 contains the citation information and counts for each article. The top 50 ranked articles are counted based on LCS, resulting in 50 highly cited papers. Each node in the map (Figure 2) represents one publication. Nodes are interconnected by rays, serving as indicators of citation relationships. Larger-sized nodes denote a higher frequency of citations. By examining the distributions of nodes, this study identified four main themes: Themes 1 and 2 examine the development and ways in which social media are used. Theme 2 examines any links that might exist between the use of social media and students' psychological well-being. Theme 3 explores motivations and fallacies behind problematic social media usage; Theme 4 investigates its societal ramifications concerning the psychological effects of social media use among university students. In order to ensure this study's comprehensiveness and to gain an in-depth view of the research hotspots concerning social media and students' psychological well-being, a systematic literature review was undertaken, comprising in-depth analyses of 50 critical articles plus relevant publications in this area.

**Figure 2**

Citation map of HistCite



**Table 1**

Highly cited publications

Node	Author (Year)	Journal or Book	LCS	GCS
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1	Fornell & Larcker (1981)	Journal of Marketing Research	36	58296
10	Hu & Bentler (1999)	Structural Equation Modeling	46	63683
20	Ran & Lo (2006)	New Media & Society	2	147
26	Ellison et al. (2007)	Journal of Computer-Mediated Communication	48	2827
27	Boyd & Ellison (2007)	Journal of Computer-Mediated Communication,	39	6454
29	Shaw & Black (2008)	CNS Drugs	5	436
34	Steinfiel et al. (2008)	Journal of Applied Developmental Psychology	27	1052
53	DeAndrea et al. (2012)	The Internet and Higher Education	3	170
57	Andreassen et al. (2012)	Psychological Reports	47	826
58	Rouis (2012)	Cyberpsychology, behaviour, and social networking	2	32
68	Przybylski et al. (2013)	Computers in Human Behaviour	44	1127
69	Baek et al. (2013)	Cyberpsychology, Behavior, and Social Networking	6	91
71	Liu & Yu (2013)	Cyberpsychology, Behavior, and Social Networking	3	102
73	Chen & Lee (2013)	Cyberpsychology, Behavior, and Social Networking	8	152
78	Yao & Zhong (2014)	Computers in Human Behavior	5	193
79	Guo et al. (2014)	Cyberpsychology, Behavior, and Social Networking	10	75
84	Park et al. (2014)	Computers in Human Behavior	8	68

108	Nesi & Prinstein (2015)	Journal of Abnormal Child Psychology	10	272
118	Andreassen et al. (2016)	Psychology of Addictive Behaviors	41	748
124	Kim et al. (2016)	Cyberpsychology, Behaviour, and Social Networking,	4	86
130	Auerbach et al. (2016)	Psychological Medicine	5	696
133	Yang (2016)	Cyberpsychology, Behaviour, and Social Networking,	10	159
143	Oberst et al. (2017)	Journal of Adolescence	21	348
145	Ophir (2017)	Computers in Human Behavior	4	32
156	Ho et al. (2017)	Computers in Human Behavior	6	55
166	Pang (2018)	Aslib Journal of Information Management	7	32
171	Pang (2018)	Online Information Review	3	27
180	Pontes et al. (2018)	Cyberpsychology, Behavior, and Social Networking	6	73
184	Marengo et al. (2018)	Computers in Human Behavior	6	131
188	Dhir et al. (2018)	International Journal of Information Management	24	390
196	Twenge et al. (2018)	Emotion	14	264
207	Pang (2018)	International Journal of Intercultural	4	31
212	Pang (2018)	Telematics and Informatics	8	51
227	Hofhuis et al. (2019)	International Journal of Intercultural Relations	3	24
228	Xie & Karan (2019)	Journal of Behavioral Addictions	4	55

230	Heffer et al. (2019)	Clinical Psychological Science	7	114
241	Cheng et al. (2019)	Psychological Bulletin	5	63
248	Ban et al. (2019)	Children and Youth Services Review	6	81
251	Liu et al. (2019)	Journal of Computer-Mediated Communication	4	162
252	Cao et al. (2019)	Journal of Educational Computing Research	4	71
256	Ellis et al. (2019)	International Journal of Human-Computer Studies	3	153
259	Scherr et al. (2018)	Journal of Media Psychology.	3	24
264	Pang (2019)	Online Information Review	5	19
303	Shi et al. (2020)	Asian Journal of Communication	3	47
305	Dailey et al. (2020)	Human Behavior and Emerging Technologie	4	23
317	Chen et al. (2020)	Journal of Behavioral Addiction	7	91
333	Choi & Noh (2020)	Information, communication & society	4	30
366	Liu & Ma (2020)	Current Psychology	4	46
401	Kwok et al. (2021)	Asian Journal of Social Health and Behavior	3	37
442	Malaeb et al. (2021)	Perspectives in Psychiatric Care	5	39

LCS = Local Citation Score; GCS = Global Citation Score.

## 2.6. Developments of the psychological effect of social media use on university students

Ellison et al. (2007) pioneered research into social media's psychological ramifications on university students, using Facebook as a case study. Their results suggested that their use could negatively impact psychological well-being. Many studies have subsequently cited this paper, and



the idea has attracted a high level of interest and much support. In later studies, research on the psychological impact social media has on university students became more refined and specific. The surge in studies examining the psychological impact of social media on university students commenced around 2019, which coincided with the timeline of the COVID-19 outbreak when the public was restricted from traveling and unable to communicate face-to-face (Böhmer et al., 2020; Ramos-Morcillo et al., 2020). Social media, an innovation from the new media age, impacts university students across a spectrum of areas--most significantly psychologically (Abbas et al., 2018). In previous studies, many factors were considered to be related to the psychological impact of university students use of social media, such as social support (DeAndrea, Ellison, LaRose, Steinfield & Fiore, 2012), self-esteem (Ho et al., 2017), life satisfaction (Ellison, Steinfield & Lampe, 2007), stress (Aydogan & Buyukyilmaz, 2017), heart pain (Chen & Lee, 2013), information overload (Chen & Lee, 2013), FoMo (Oberst et al., 2017.), social networking site addiction (Pontes, Taylo & Stavropoulos, 2018), anxiety (Xie & Karan, 2019), depression (Malaeb et al., 2021), social isolation (Choi & Noh, 2020), social networking intensity (Roberts & David, 2023), social comparison (Nesi & Prinstein, 2015), and loneliness (Yao & Zhong, 2014). These are discussed in the following section and are divided into four parts.

## **2.7. Profiling social media**

This theme concentrates on social media concepts, functions, and roles. It then slowly expands into aspects of the way social media affects the psychology of university students. Regarding the definition of social media, Carr and Hayes (2005) argue that social media refers to online internet platforms that empower users to engage in interactive behavior with a wider range or a portion of the audience, either in real-time or asynchronously, depending on individual preferences. Social media allows individuals to foster interactions between themselves and others they perceive to be of great value to them. It provides an outlet to build and strengthen social ties while simultaneously showing or hiding aspects of themselves from society (Boyd & Ellison, 2007). Researchers have gradually begun to notice the negative impacts of social media. Some scholars claim that SNSs could lead to social loneliness, a loss of social cohesion, and SNS addiction (Baek, Bae & Jang, 2013). Researchers are now focusing on the causes and effects of social media usage. They combined the application of satisfaction theory to argue and explore individual motivations for using social media, which can lead to different outcomes (Pang, 2018). Pang (2018) concluded that social media, specifically Social Networking Sites (SNSs), facilitate social connections and cardiovascular health among university students through Social Networking Sites. SNSs preserve social capital by serving as an avenue to influence user well-being online. A study of a population of international students discovered that social media use affects psychological well-being concerning psychological alienation. (Hofhuis, Hanke & Rutten, 2019).

## **2.8. The linkage between psychological well-being and social media use**

Ellison et al. (2007) suggest, based on the relationship between the psychological well-being of university students and their use of social media, that platforms such as Facebook could positively

impact those with low self-esteem or life satisfaction. Steinfield et al. (2008) conducted research assessing the effect of Facebook use on psychological well-being and social relationships, specifically targeting individuals' low self-esteem and social connections. Researchers identified Facebook as a tool to help these individuals overcome any barriers to creating wider networks. Chen and Lee (2013) assert that university students' social media use and psychological well-being are linked to communication overload. Przybylski et al. (2013) propose that Fear of Missing Out (FoMo) correlates to increased behavioral engagement on social media, particularly for individuals experiencing reduced satisfaction with fundamental needs such as competence, autonomy, and relevance. A study by Pontes et al. (2018) identified maladaptive cognitions, FoMo, and psychological distress as significant risk factors leading to Social Networking Site (SNS) addiction. Individuals who use social networking services to access information and stay connected may experience positive benefits in both network building and psychological well-being (Guo, Li & Ito, 2014). An American international student study revealed that university students who relied solely on Facebook for communication had lower acculturative stress levels and greater psychological well-being than those using ethnic SNSs (Park, Song & Lee, 2014).

An investigation on social media usage using Instagram as an illustration found that Social Comparison Orientation (SCO) can modulate the relationship between social networking and loneliness. Users with low SCO typically perceive Instagram interactions as being associated with less loneliness (Yang, 2016). The study elucidated the role of social capital as a mediator between the use of the WeChat platform and personal well-being (Pang, 2019). Bonding social capital has been shown to positively correlate with life satisfaction while attenuating loneliness (Pang, 2018). An extensive meta-analysis conducted on social media's effect revealed that its correlation to individual well-being varied depending on its application; phone calls and text messaging showed positive associations while online gaming demonstrated adverse effects; interactions, self-presentations, and entertainment activities on social networking sites were linked with greater well-being while content consumption on these platforms had negative repercussions (Liu et al., 2019). Cheng et al. (2019) debated the interaction between individual personality and daily social media usage habits. Extroverted individuals with extroverted traits are more willing to use social media to expand their social contacts and reach a broader online community than those with social anxiety; conversely, those experiencing loneliness struggle to access these resources.

Researchers conducted a regression analysis assessing predictors of social media addiction on four platforms - Facebook, Twitter, Snapchat, and Instagram. Their researchers discovered that biological factors, represented by age; socio-cultural factors encompassing gender and intensity of use; psychological factors including stress levels; empathic concerns, self-consciousness, and depressive symptoms collectively explained over 50% of the variance; individuals showing empathy towards others showed increased psychological resilience which may reduce susceptibility to addiction (Dailey et al., 2020). A study from Lebanon suggests that an increased duration of social media use increases psychological problems such as depression, anxiety, and insomnia, with stress serving as a mediating factor affecting the relationship between

psychological problems such as depression and insomnia and social media use (Malaeb et al., 2021). Hong Kong researchers conducted an experiment that demonstrated that online gaming negatively correlates with physical activity and psychological well-being ( $r_s = -4.49$  to  $-6.62$ ), while social media usage negatively correlates with physical exercise (Kwok et al., 2021).

## 2.9. Problematic Social media use motivation and fallacies

Papers in this thematic area explore motivations and misconceptions about problematic social media usage. Dhir et al. (2018) assert that fear psychology related to "fear of missing out" predicts fatigue through compulsive use of social media; this leads to elevated anxiety and depression levels. Choi and Noh (2020) demonstrated that social media usage and suicidal attitudes are linked to psychological well-being; additionally, increased use is linked with a greater prevalence of suicidal thoughts. Liu et al. (2020) analyzed the interaction between social media addiction and burnout among Chinese college students. Their research findings reveal a strong correlation between predictive factors of fatigue and social media addiction, jealousy, and anxiety. Social anxiety and envy were identified as mediating factors between social network addiction and burnout. Han and Yang (2023) highlighted the substantial effect that information overload, related to social media use overload, had on students' fatigue. Both technological stress and student fatigue are affected by student fatigue (Shi et al., 2020). In the absence of Facebook, the habit of Facebook addiction and anxiety are related to gender interaction and trait anxiety; When trait anxiety is low, it is necessary to study the gender differences in Facebook addiction (Xie & Karan, 2019). The sense of belonging of college students positively influences their behavior of using social media, leading to greater social engagement. Social media usage also impacts the relationship between a need to belong and social engagement among university students (Kim et al., 2016).

Studies have highlighted the negative repercussions of problematic social media use. Andreassen et al. (2012) suggests that university students exhibiting social network addiction tend to exhibit higher levels of engagement with social media platforms than others. Six fundamental components (salience, mood alteration, tolerance, withdrawal, conflict, and relapse) were drawn from 18 items used in this experiment to develop the Bergen Facebook Addiction Scale (BFAS). Research revealed that ratings on this scale showed positive correlations with neuroticism and extraversion, while negative ones appeared for conscientiousness. Psychological well-being variables, including attention-deficit/hyperactivity disorder (ADHD), obsessive-compulsive disorder (OCD), anxiety, and depression, reveal between 7-15% of the difference in addictive use between social media and video games, two contemporary online technologies. This discrepancy refers to compulsive or excessive usage linked to adverse outcomes (Andreassen et al., 2016). A survey conducted in Singapore demonstrated that neuroticism often serves as a precursor for both excessive social media use and addiction, with self-identity showing strong associations with both variables; the relationship between these two variables and self-esteem is negative (Ho, Lwin & Lee, 2017). Excessive internet usage can increase loneliness over time. Offline socializing proves more effective in mitigating loneliness than online interactions due to face-to-face interactions, with reduced symptoms of internet addiction exhibited through face-to-face conversations; however,

excessive internet use may negate these positive effects by initiating an undesirable cycle between internet addiction and loneliness (Yao & Zhong, 2014).

### **2.10. Social effect**

This theme is centered on the social and psychological impact of social media usage on university students. The changing landscape of social media has brought university students into sharper focus. (Al Hail, Zguir & Koc 2023). As the literature on this subject expands, there is a growing emphasis on examining the broader societal implications of such research. Study results on Facebook's influence on university students' learning outcomes concluded that it positively affected multitaskers with an initial interest in academia. In contrast, students with the opposite traits were not significantly affected (Rouis, 2012). Facebook can provide a virtual online support platform for college students, which is an innovation and extension of traditional social support. While general social support positively correlates with well-being, online social support does not directly impact well-being. Instead, this relationship is moderated through the lens of general social support (Liu & Yu, 2013). Recent advances in social media use have given rise to cyberbullying, with college students being particularly susceptible. Research demonstrates a correlation between cyberbullying victimization (CV) and internalizing disorders like depression and anxiety, both factors being directly correlated to social media fatigue. Furthermore, the relationship between social media attachment (SMA) and cyberbullying victimization (CV) is moderated by moral disengagement (Cao, Khan, Zaigham & Khan, 2019). Study findings reveal a positive effect of WhatsApp use on university student's psychological well-being, with social integration playing an essential mediating role between bonding social capital (BOC), WhatsApp use, and the psychological well-being of university students. Bano et al. (2019) found only a modest effect of bridging social capital (BRC) between WhatsApp use and students' psychological well-being, as measured by students' psychological well-being scores on a psychological well-being questionnaire and students' psychological well-being scores (psychometric). Heffer et al. (2019) concluded that the use of social media by both men and women cannot predict changes in depressive psychological problems. Moreover, adolescent girls who have experienced severe depression have actually increased their frequency of using social media, which overturns all previous perceptions that social media causes psychological disorders.

### **3. Measurement method**

Our survey reveals the prevalent use of regression analysis in research investigating the psychological implications of social media use on university students. Utilizing regression analysis, a statistical approach is applied to unveil the interconnected quantitative relationships among two or more variables. The study aims to identify pertinent variables linked to social media utilization and psychological factors. It hypothesizes the relationships between these variables and devises a questionnaire to survey respondents independently. Subsequently, mathematical calculations generate corresponding values, which the study compares and evaluates to establish relationships between variables (Ellison et al., 2007).

Andreassen et al. (2016) conducted a cross-sectional survey, permitting data collection from numerous individuals at a single point without influencing variables. The findings suggest that psychological symptoms, specifically anxiety and depression, exert a noteworthy influence on social media addiction, persisting even after adjusting for gender, age, and relationship status. Demographic factors elucidate 11-12% of the variance in hierarchical multiple regression models.

Heffer et al. (2019) incorporated demographics into a longitudinal survey using two distinct samples of adolescents (Mage = 12.21) and university students (Mage = 19.06). The study integrated demographics in a longitudinal study using two samples of adolescents (12.21 Mage) and students (19.06 Mage). Spanning six years, the survey utilized the Centre for Epidemiological Studies Depression Scale (Radloff, 1991) and the Depression Scale for Children and Adolescents (Wiseman, Owaschell & Padian, 1980) to assess depressive symptoms at each time point. Composite scales were developed to assess social media usage frequency; however, the findings did not demonstrate any direct or significant correlations between depression and the use of social media.

Scherr et al. (2018) utilized a cross-lagged longitudinal design, incorporating two waves separated by a one-year interval. Findings revealed an association between depression and increased Facebook monitoring and envy, both initially and after one year. However, Facebook monitoring and envy did not lead to heightened levels of depression at either time point. Over time, depression was positively associated with envy, while envy predicted subsequent Facebook surveillance. These findings highlight the practical implications for psychological well-being in Facebook users of the stress-producing hypotheses (Scherr, Toma & Schuster, 2018).

#### **4. Directions for future research**

Contemporary research in related areas frequently employs cross-sectional and longitudinal studies (Heffer et al., 2019; Chang et al., 2022; Di et al., 2022). Cross-sectional studies offer efficient data collection within a shorter timeframe and at a lower cost, requiring only a single data collection phase. However, this approach encounters challenges establishing causality due to the temporal uniformity during data collection. This uniformity may also impact the relationships between various variables. Furthermore, tracking participant changes and development proves challenging, and speculating the evolution of specific variables over time becomes complex (Olsen & St, 2004; Kesmodel, 2018).

On the contrary, longitudinal studies can address the issues above (Yeterian, Dow & Kelly, 2012; Scherpenzeel, 2018). However, prolonged follow-up periods in longitudinal studies may result in participant attrition for various reasons, such as losing interest, diminishing the study's validity, and incurring additional costs. In such scenarios, future investigations may consider incorporating cross-sectional and longitudinal designs, such as a cross-tagged longitudinal design. An initial cross-sectional study could provide preliminary insight into the correlation between university student's use of social media and psychological well-being. After this step is taken, a subgroup of

participants could be specifically chosen for prolonged monitoring and surveys to examine any dynamic fluctuations between factors better, increasing the comprehensiveness and objectivity of data results. Research initiatives may use various methodologies to increase the applicability of their study and create a deeper understanding of how social media use and the psychological well-being of university students are intertwined.

The rapid development of information technology and innovation today have led to the development of social media in a fissionable manner, exhibiting exponential changes, resulting in varying degrees of psychological changes among college students (Rahmatullah et al., 2022; Fährlich, Weitkamp & Kupper, 2023). Recently, experts have also studied the psychological issues that social media brings when used by people, such as anxiety, loneliness, and negative evaluations, which are common (Fährlich et al., 2023). Yang (2021) affirmed that the environment, technology, differences, personal characteristics, and background of social media are all related to social anxiety psychological problems. She suggests that the public should change their way of communication and use unique patterns as much as possible, which can solve the problem of psychological anxiety. Bodhi et al. (2022) further demonstrated that as the duration of social media usage increases, feelings of loneliness increase, and individual mental health has a negative impact on this relationship.

On the contrary, people who have experienced loneliness tend to prefer to interact with like-minded peers through such platforms, resulting in emotional resonance and more social interaction - they believe that this interaction goes beyond the comfort and help brought by traditional communication. Wolniewicz et al. (2018) speculated that an individual's fear of negative information is a psychological compensatory response process, and this compensatory stress may lead to the use of social media. The future research field should focus on the new psychological problems brought about by the use of various new media, distinguishing it from anxiety and fear, and focusing on the impact of college students as a group.

Based on this future direction, research can investigate and collaborate with emerging media products, including social media, to enhance the psychological quality and mental life of college students. Current scientific research summarizes the interrelationship and impact of biosensing technologies and the daily use of social media. This specifically means that each individual can share their sensory feelings and physical reactions digitally and in a way that is different from real existence (Hassib, 2018). The most representative one is virtual reality (VR), which can improve people's physical fitness and enhance people's experience of sensory information in the process, including smell, audio, and other information (Carr et al., 2020; Tu, 2023). This systemic interaction can significantly reduce the symptoms of anxiety and at the same time help the body's regulatory functions return to good levels. As a result, people can experience a more comprehensive range of feelings, and their physical and mental health is improved (Kruzan & Won, 2019). Previous surveys have shown that voice calls and text messages are the most influential means of enhancing social interaction and can have a positive impact on people's

psychology. In the future, experimenters can get involved in research on a larger range of virtual interactions and explore their effect on psychology (Liang et al., 2023).

Exploring the principles of different social media platforms and their impact on the mental health of college students is an emerging and challenging research field. Previous studies have summarized social media platforms, represented by Instagram, can stimulate users' awareness of physical comparison, leading to poor mental health conditions (Mouris, 2022). Twitter and Weibo, two social media platforms, will influence users' emotional state and cognitive level in a text-based manner (Ma, Ling & Wu, 2020; Zhang et al., 2023). TikTok stimulates users to express themselves and create content through the creation of short videos, but at the same time, there are potential risks such as aesthetic fatigue and communication barriers (Hu, 2023). Moreover, the application methods used on social media in each country are unique - WeChat is highly sought after by a large audience in China, while WhatsApp is more popular in the United States - which increases the complexity of social media usage (Von 2023). Future exploration should also delve into different social media platforms, combining different populations and cultural backgrounds for comparative exploration, in order to provide targeted technology and intervention policies and create a more universal and healthy online communication atmosphere.

## 5. Conclusion

This study applied HistCite to conduct a comprehensive and systematic literature review, focusing on exploring the effect of social media on the psychology of university students. This review also examines the unique potential psychological crises of this population and summarizes the risky social media usage habits and their impact on society, including motivation and misunderstandings. Based on these citations and analyses, the article discusses four future directions for further research in this field. Social media has become an unattainable way for every college student to communicate and interact, but it also faces the danger of challenging their mental health. We are responsible and committed to exploring and inspiring in this field. This study aims to increase people's awareness of the pros and cons of using social media, encourage more users to know about this related topic, and encourage scholars to further explore, in order to provide better solutions and interventions.

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