

Cyberbullying in the Age of Social Media: A Systematic Review of Mental Health Outcomes among Adolescents

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Abstract

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Background: Cyberbullying via social media has emerged as a major public health concern among adolescents; however, evidence regarding its impact on mental health remains fragmented. This systematic review aimed to synthesize empirical evidence published between 2016 and 2025 on the association between social media-based cyberbullying and adolescent mental health outcomes. **Methods:** A systematic review was conducted using PubMed, ScienceDirect, Scilit, and PsycINFO in accordance with PRISMA 2020 guidelines. Studies were eligible if they included adolescents aged 10–19 years, explicitly examined cyberbullying within social media contexts, and assessed mental health outcomes using validated instruments. Risk of bias was evaluated using the Newcastle–Ottawa Scale (NOS) and Joanna Briggs Institute (JBI) appraisal tools. **Results:** Twenty-three studies involving more than 38,000 adolescents were included, comprising cross-sectional, longitudinal, and mixed-design studies. Reported prevalence of cyberbullying ranged from approximately 10% to 74.5%. Cybervictimization was consistently associated with increased risks of depression (OR \approx 1.4–2.3), anxiety (OR \approx 1.8–2.0), and suicidal behaviors (AOR = 2.62; 95% CI 1.73–3.98). Longitudinal evidence indicated that cybervictimization often preceded deterioration in mental health outcomes. Anxiety, peer relational stress, and sleep problems emerged as key mediating factors, while self-control and school connectedness appeared to serve as protective factors. **Conclusions:** Cyberbullying represents a significant and consistent risk factor for adverse mental health outcomes among adolescents. These findings highlight the need for comprehensive prevention strategies, including school-based interventions, digital literacy programs, and strengthened social media platform safeguards.

Keywords: cyberbullying; social media; adolescents; mental health; systematic review.

Introduction

The rapid expansion of social media has fundamentally transformed how adolescents communicate, socialize, and construct their identities, making digital interaction a central component of contemporary adolescent development (Keles et al., 2020; Odgers & Jensen, 2020). Adolescents are among the most active users of social media platforms, and their ongoing cognitive, emotional, and social maturation may increase vulnerability to harmful online experiences, including cyberbullying (Hinduja & Patchin, 2019; Jiang et al., 2025). While social media can provide opportunities for social support and identity exploration, excessive or problematic use has been associated with higher levels of depression, anxiety, and loneliness among adolescents, potentially heightening susceptibility to negative online interactions (Cava et al., 2020).

Cyberbullying is commonly defined as intentional and repeated harm inflicted through electronic communication technologies, including social networking sites, messaging applications, and other interactive online platforms (Peebles, 2014; Smith et al., 2008). Compared with traditional face-to-face bullying, cyberbullying is characterized by anonymity, potentially unlimited audience reach, and the persistence of harmful content, which may intensify psychological distress among victims (Holfeld & Mishna, 2021; Kim et al., 2025; Kowalski et al., 2014). Global prevalence estimates of cyberbullying among adolescents range from

approximately 10% to 40%, with considerable variation attributable to differences in measurement tools, operational definitions, cultural contexts, and platform-specific dynamics (Hinduja & Patchin, 2019; Modecki et al., 2014).

A growing body of evidence indicates that involvement in cyberbullying whether as a victim, perpetrator, or bully–victim is associated with adverse mental health outcomes, including depressive symptoms, anxiety, emotional distress, self-harm, and suicidal ideation (Fahy et al., 2016; van Geel et al., 2022). Longitudinal studies suggest that cybervictimization may function not only as a correlate but also as a prospective risk factor for subsequent mental health problems, even after controlling for baseline psychological symptoms and prior victimization (Fahy et al., 2016). Similarly, evidence from traditional bullying research demonstrates that early peer victimization is linked to long-term risk of depression and suicide attempts in adolescence and young adulthood (Bettencourt et al., 2023).

Despite increasing scholarly attention, findings across studies remain heterogeneous due to variability in study designs, definitions of cyberbullying, outcome measures, and the extent to which social media is explicitly conceptualized as the primary exposure context (Keles et al., 2020). An earlier systematic review by Bottino et al. (2015) synthesized evidence on cyberbullying and adolescent mental health but was limited by its reliance on only two databases, inclusion of studies conducted before the widespread adoption of contemporary social media platforms, and lack of focus on platform-specific cyberbullying dynamics.

Since 2015, the digital landscape has evolved substantially. Adolescents' online interactions are now shaped by algorithmic amplification, public visibility metrics (e.g., likes and shares), continuous peer surveillance, and persistent digital footprints, which may modify the nature and impact of cyberbullying (Keles et al., 2020; Odgers & Jensen, 2020). More recent narrative reviews have examined cyberbullying and psychological well-being; however, many combined multiple age groups, employed non-systematic methodologies, or lacked formal risk-of-bias assessments, thereby limiting methodological rigor (Giumetti & Kowalski, 2022).

Although some studies in adult populations have explored how social media use may moderate the relationship between cyberbullying and mental health, these findings cannot be directly generalized to adolescents due to developmental, social, and neurobiological differences unique to this life stage (Blakemore & Mills, 2014). To our knowledge, no systematic review has comprehensively synthesized post-2015 empirical evidence focusing exclusively on cyberbullying occurring within social media environments and its mental health consequences among adolescents. Therefore, this systematic review aims to synthesize and critically evaluate current evidence on the association between cyberbullying via social media and mental health outcomes among adolescents. The findings are intended to inform evidence-based prevention strategies, digital safety policies, and mental health interventions tailored to contemporary online environments.

Methods

This systematic review was conducted to examine the association between cyberbullying via social media and mental health outcomes among adolescents. The review was designed and reported in accordance with the PRISMA 2020 Statement to ensure methodological transparency and reproducibility (Page et al., 2021). This systematic review was not prospectively registered in the PROSPERO database.

Eligibility Criteria

Eligibility criteria were structured using the PECOS framework, including population, exposure, comparison, outcomes, and study design. The population of interest included adolescents aged 10–19 years, consistent with the World Health Organization definition of adolescence (WHO, 2024). Studies involving mixed-age populations were included only if data for adolescents could be extracted separately.

The exposure of interest was cyberbullying occurring within social media platforms, including Instagram, Facebook, TikTok, Twitter/X, Snapchat, WhatsApp, and other social networking or messaging applications with interactive social features. Cyberbullying was operationally defined as intentional and repeated harm delivered through digital communication channels, including harassment, threats, humiliation, or exclusion.

Where applicable, comparison groups consisted of adolescents not involved in cyberbullying. Eligible studies were required to report mental health outcomes measured using validated instruments, including depression, anxiety, psychological distress, stress-related symptoms, self-harm, suicidal ideation, and overall psychological well-being.

Peer-reviewed studies using quantitative, qualitative, or mixed-methods designs published between January 2016 and December 2025 were considered eligible. Studies were excluded if they were case reports, editorials, conference abstracts, or review articles. Studies focusing solely on traditional (offline) bullying without a cyber component, studies conducted exclusively in adult populations, and studies that did not clearly situate cyberbullying within social media contexts were also excluded.

Information Sources and Search Strategy

A systematic search was conducted across PubMed/MEDLINE, ScienceDirect, Scilit, and Google Scholar. Google Scholar was used as a supplementary source to identify potentially relevant studies not captured in indexed databases. In addition, reference lists of included studies and relevant reviews were manually screened to ensure comprehensive coverage. The final search was conducted on 10 January 2026, and no geographic restrictions were applied.

The search strategy incorporated a combination of Medical Subject Headings (MeSH) and free-text terms related to cyberbullying, social media, adolescence, and mental health. Boolean operators ("AND," "OR") and truncation were applied to maximize sensitivity. An example of the PubMed search strategy is provided below:

(cyberbullying [MeSH Terms] OR cybervictimization OR cyberbully* OR "online harassment" OR "electronic bullying") AND ("social media" OR "social networking sites" OR Instagram OR Facebook OR TikTok OR Twitter OR X OR Snapchat OR WhatsApp) AND ("mental health" [MeSH Terms] OR depression OR anxiety OR "psychological distress" OR "suicidal ideation") AND (adolescent [MeSH Terms] OR adolescen* OR teen* OR youth)

Study Selection and Data Extraction

All identified records were imported into reference management software, and duplicate records were removed. Two reviewers independently screened titles and abstracts for eligibility. Full-text articles were subsequently assessed against predefined inclusion criteria. Discrepancies between reviewers were resolved through discussion and, when necessary, consultation with a third reviewer. The study selection process was documented using a PRISMA flow diagram.

A standardized data extraction form was developed to collect information on authorship, publication year, country, study design, sample size, participant characteristics, definitions and measures of cyberbullying, mental health outcomes assessed, key findings, and effect estimates where available. Data extraction was performed independently by two reviewers to minimize errors and reduce potential bias.

Risk of Bias Assessment

Methodological quality and risk of bias were assessed using validated tools appropriate to each study design. The Newcastle–Ottawa Scale (NOS) was applied to cohort and longitudinal studies, while the Joanna Briggs Institute (JBI) Critical Appraisal Checklist was used for cross-sectional studies. The JBI Qualitative Appraisal Tool was employed for qualitative studies (Barker et al., 2023). Based on the overall assessment across relevant domains, each study was classified as having low, moderate, or high risk of bias. Detailed risk of bias assessments for all included studies are presented in Table 3.

Data Synthesis

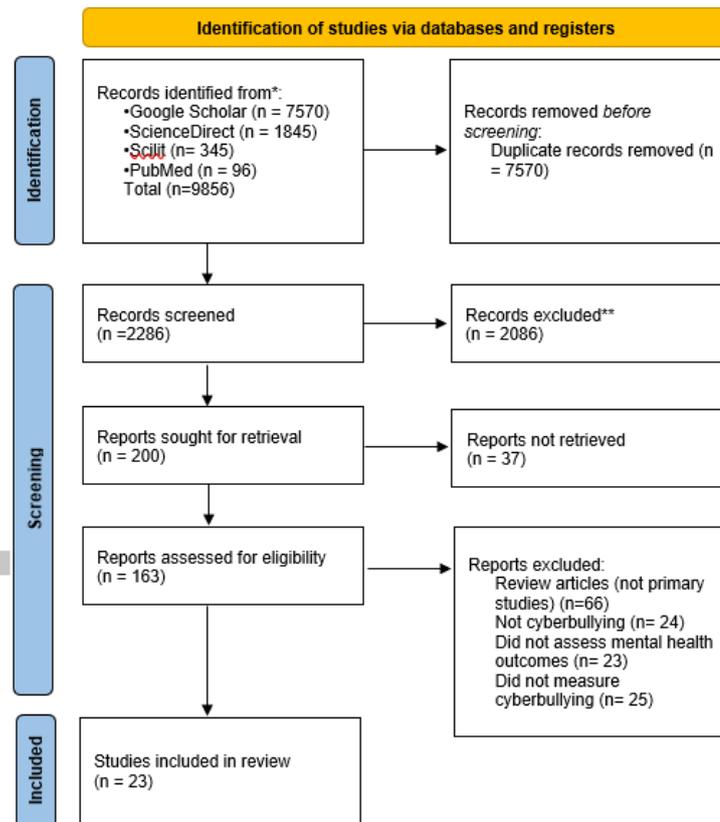
Given the anticipated heterogeneity in study designs, exposure definitions, and outcome measures, a narrative synthesis approach was employed. Findings were grouped according to types of cyberbullying involvement (victim, perpetrator, or bully–victim) and categories of mental health outcomes. Where applicable, longitudinal associations, mediating mechanisms, and dose–response relationships were also highlighted.

Results

The systematic search yielded 9,856 records across all databases. After removal of 7,570 duplicates (approximately three-quarters of the initial records), 2,286 titles and abstracts were screened for relevance. Of these, 2,086 records were excluded because they did not focus on cyberbullying, involved non-adolescent populations, or did not report mental health outcomes. A total of 163 full-text articles were assessed against the eligibility criteria, and 140 were excluded primarily due to insufficient specification of social media–based

cyberbullying, inappropriate population, or inadequate mental health data. Ultimately, 23 studies met all inclusion criteria and were included in the qualitative synthesis. The study selection process is illustrated in the PRISMA flow diagram (Figure 1).

Figure 1. PRISMA flow diagram



Characteristics of Included Studies

Across the 23 included studies, the total sample exceeded 38,000 adolescents, with individual sample sizes ranging from 50 participants in a single-school Indonesian study (Jamroni et al., 2025) to 12,866 participants in a nationally representative cohort in England (Viner et al., 2019). Most studies focused on early to mid-adolescence, typically between 12 and 17 years of age. Sex distribution was generally balanced across studies, although two studies deviated from this pattern: one included only female adolescents in Colombia (Tabares et al., 2024), while another Indonesian study comprised predominantly male students (82%) (Jamroni et al., 2025).

Methodologically, the evidence base was dominated by observational research. Nearly half of the studies employed cross-sectional designs (11/23), including large school-based surveys in China (Li et al., 2023), Norway (Skogen et al., 2023), and Spain (Cava et al., 2020), as well as a clinical sample from a U.S. pediatric emergency department (Duarte et al., 2018). Although these studies provided valuable prevalence estimates and correlational findings, they were limited in establishing causal relationships.

Ten studies (43.5%) used longitudinal designs with two to three waves of follow-up, strengthening conclusions regarding temporal relationships between cyberbullying and mental health outcomes. Notable examples included multi-wave cohorts in China (Chu et al., 2019; Gao et al., 2021; Tian et al., 2018; Zhu et al., 2021), England (Fahy et al., 2016; Winstone et al., 2024), and the United States (Wright et al., 2018; Wright & Wachs, 2019). Two large nationally representative cohorts, Viner et al. (2019) and Nagata et al. (2025), were particularly influential due to their scale and methodological rigor.

A smaller number of studies employed innovative or quasi-longitudinal approaches. Liu et al. (2025) analyzed digital trace data from Sina Weibo to examine real-time psychological changes following cyberbullying

incidents, while Balt et al. (2023) used a qualitative psychological autopsy approach to explore contextual pathways linking online harm to psychological distress and suicidal thoughts. Table 1 summarizes the characteristics and key findings of the 23 included studies.

Table 1. Characteristics and Key Findings of Included Studies (n = 23)

| References (Year) | Country | Design | Sample (N; Age; Sex) | Cyberbullying measure | Risk of bias | Key findings (quantitative / qualitative) |
|----------------------------|------------------|---|--|--|---------------|---|
| Balt et al., 2023 | Netherlands | Qualitative psychological autopsy (IPA) | N=35 cases (55 interviews); 14–19 yrs; 18F/17M | Thematic analysis of social media harm | Moderate | Most cases showed sustained negative online experiences preceding severe distress and suicidal ideation. |
| Fehintola & Ogunniyi, 2025 | Nigeria | Cross-sectional | N=250; Mage=15.2 (SD 1.8); ~130F/120M | Cybervictimization Scale (CVS) | Moderate | CV positively correlated with anxiety (SCARED scores). |
| Cava et al., 2020 | Spain (Valencia) | Cross-sectional | N=604; 12–17 yrs (Mage=14.32); ~342F/262M | Cyber dating violence + CB scale | Moderate | Higher cyber-control associated with higher depression and loneliness ($p < .01$), especially among girls. |
| Wright et al., 2018 | USA | Longitudinal (2 waves) | T1=1,090; T2=1,067; ~545F/545M | 6-item bystander scale | Moderate | Being a bystander at T1 predicted higher depression and anxiety at T2; empathy strengthened depression pathway. |
| Wright & Wachs, 2019 | USA | Longitudinal (2 waves) | N=416; Mage=13.89; ~191F/225M | 9-item cybervictimization | Moderate | Low school belonging amplified CV → higher T2 depression and anxiety (significant moderation). |
| Mahanta & Khatoniyar, 2019 | India | Cross-sectional | N=100; 16–18 yrs; 50F/50M | 20-item self-developed scale | Moderate–high | CV negatively correlated with mental health ($r = -0.369$, $p < .01$). |
| Duarte et al., 2018 | USA (urban ED) | Cross-sectional | N=1,031; Mage=14.9; ~538F/493M | Past-year involvement | Moderate–high | SI: 17.4% vs 2.68%; PHQ-9 \geq 10: 16.8% vs 7.78%; PTSD: 33.9% vs 12.1% (CB vs non-CB). |
| Jamroni et al., 2025 | Indonesia | Cross-sectional | N=50; 17–20 yrs; 9F/41M | 10-item validated CB scale | High | χ^2 significant ($p = .000$): higher CV associated with |

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|----------------------------|---------------|------------------------------------|-----------------------|--------------------------|---------------|--|
| | | | | | | poorer mental health. |
| Marengo et al., 2024 | Italy | Cross-sectional mediation | ~1,140; Mage=12.35 | Visual cyberbullying | Moderate | SMU → suicidal ideation indirect 0.851 (0.476–1.250); direct $\beta=0.85$ ($p=.016$). |
| Tian et al., 2018 | China | 3-wave longitudinal (SEM) | N=606; Mage=12.93 | EBQ | Low–moderate | CV → depression (indirect 0.06; 95% CI 0.022–0.106); ↓ school wellbeing (–0.08). |
| Viner et al., 2019 | England | 3-wave longitudinal | N=12,866; 13–16 yrs | CV as mediator of SMU | Low–moderate | Girls aOR 1.31 (1.06–1.63); Boys 1.67 (1.24–2.26); mediation 58–80% via CV/sleep/PA. |
| Skogen et al., 2023 | Norway | Cross-sectional | N=3,253; Mage≈17 | Two CB composites | Moderate | Depression OR 2.29 (1.93–2.72); Anxiety OR 1.91 (1.65–2.20); Wellbeing OR 0.49 (0.42–0.57). |
| Liu et al., 2025 | China (Weibo) | Digital trace / quasi-longitudinal | N=120 (online cohort) | Incident-based detection | Moderate–high | Post-CV: ↓ happiness ($p=.04$); ↑ negative emotion ($p=.005$); ↑ anger & neuroticism ($p=.001$). |
| Winstone et al., 2024 | England | Longitudinal cohort | N=1,195; 13–14 yrs | Frequency of roles | Moderate | Victim AOR 1.54 (1.02–2.31); bully–victim 1.63 (1.05–2.52); frequent victim 1.94 (1.08–3.50). |
| Li, Wu & Hesketh, 2023 | China | Cross-sectional | N=3,378; Mage=13.58 | 5-item involvement | Moderate | Bully–victim highest risk across outcomes (AOR ≈ 1.7–2.5). |
| Kim et al., 2025 | Bahamas | Cross-sectional (GLMM) | N=1,563; Grade 9 | Single-item CV | Moderate | CV significantly associated with lifetime suicidal ideation (adjusted models). |
| Gómez Tabares et al., 2024 | Colombia | Cross-sectional (girls only) | N=751; Mage=13.71 | EBIPQ + roles | Moderate–high | $R^2=0.22$ (depression); $R^2=0.64$ (suicide risk); depression mediated CV–suicide link. |

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|----------------------|------------|---------------------|---------------------|----------------------|--------------|--|
| Nagata et al., 2025 | USA (ABCD) | Prospective cohort | N=9,799; Mage=12.02 | Single-item CV | Low–moderate | Suicidal behaviors AOR 2.62 (1.73–3.98); alcohol 1.98; nicotine 3.37; cannabis 4.65. |
| Calvete et al., 2019 | Spain | RCT + longitudinal | N=858; Mage=14.56 | CBQ + RPEQ | Low–moderate | Victimization predicted later perpetration; ITPI intervention weakened this pathway. |
| Chu et al., 2019 | China | 3-wave longitudinal | N=661; 12–14 yrs | Self-report CB scale | Moderate | Depression & anxiety predicted later CV (stress-generation). |
| Fahy et al., 2016 | UK | 2-wave longitudinal | ~2,480; 12–14 yrs | Ybarra 6-item scale | Low–moderate | Victims → depression OR 1.44 (1.00–2.06); social anxiety OR 1.52 (1.11–2.07). |
| Gao et al., 2021 | China | 2-wave longitudinal | N=2,407; Mage=12.75 | Chinese CB scale | Moderate | Bidirectional CV ↔ depression (male effect stronger). |
| Zhu et al., 2021 | China | 3-wave longitudinal | N=1,987; Mage=12.32 | Self-report CB scale | Moderate | CV T1 → anxiety T2 → NSSI T3, significant only with low self-control. |

Measurement and Prevalence of Cyberbullying

Measurement approaches varied considerably across studies. Many relied on validated multi-item instruments such as the Electronic Bullying Questionnaire (Tian et al., 2018), the Cyberbullying Questionnaire (Calvete et al., 2019), and the Ybarra scale (Fahy et al., 2016). Several studies distinguished cyberbullying roles, including victim, perpetrator, and bully–victim, allowing for more nuanced analysis of risk profiles.

Other large-scale cohort studies used single-item measures of cybervictimization, notably the ABCD study in the United States (Nagata et al., 2025). Although this approach may underestimate prevalence, it enhanced national representativeness. Several studies also incorporated digital exposure indicators, such as hours spent on social media (Li et al., 2023; Viner et al., 2019) or number of platforms used (Duarte et al., 2018; Marengo et al., 2024), to contextualize cyberbullying risk.

Reported prevalence of cyberbullying varied widely, ranging from approximately 10% to 74.5%, reflecting differences in measurement tools, recall periods, and cultural contexts. In Norway, Skogen et al. (2023) reported that 74.5% of adolescents experienced at least one negative online event associated with higher depression, anxiety, and reduced well-being. In China, Li et al. (2023) found that 37.5% of students were involved in cyberbullying, with bully–victims demonstrating the highest psychosomatic symptom burden. In the United States, Duarte et al. (2018) reported a prevalence of 24.6% in an urban pediatric emergency department sample. Meanwhile, an Indonesian study (Jamroni et al., 2025) reported high exposure (72%), although this estimate was based on a small single-school sample. Overall, prevalence tended to be higher in contexts characterized by intensive social media use.

Cyberbullying and Mental Health Outcomes**Depression and Anxiety**

Across diverse settings, cybervictimization was consistently associated with higher levels of depression and anxiety. In Norway, Skogen et al. (2023) showed that adolescents exposed to negative online experiences had more than double the odds of clinically relevant depression (OR = 2.29) and significantly increased anxiety (OR = 1.91). Similarly, Fahy et al. (2016) demonstrated that cybervictims remained at elevated risk of later depression (OR = 1.44) even after adjusting for baseline mental health and sociodemographic factors.

Tabel 2. Cyberbullying dan Mental Health Outcomes

| Authors (Year) | Prevalence of cyberbullying | Risk factors related to cyberbullying | Measures of mental health problems | Mental health problems related to cyberbullying |
|----------------------------|-----------------------------|---|---|--|
| Balt et al., 2023 | NR (kualitatif) | Heavy/problematic social media use; interpersonal conflict; exposure to online harm | Thematic (no scale) | Distress, suicidal thoughts, reduced wellbeing |
| Fehintola & Ogunniyi, 2025 | NR | Higher online engagement | SCARED | Higher anxiety among cybervictims |
| Cava et al., 2020 | NR | Cyber-control & cyber-aggression in dating | Loneliness scale; Depressive mood scale | Higher depression; greater emotional loneliness; poorer social network quality |
| Wright et al., 2018 | NR | Being a cyberbullying bystander | CES-D; MASC | Higher depression & anxiety at T2 |
| Wright & Wachs, 2019 | NR | Low school belongingness | CES-D; MASC; UCLA loneliness | Higher depression, anxiety & loneliness at T2 |
| Mahanta & Khatoniyar, 2019 | NR | Social media use | MHI-18 | Poorer overall mental health ($r = -0.369$, $p < .01$) |
| Kim et al., 2025 | Common (exact % NR) | ≥ 3 h/day SM use; sexting; X (Twitter) use | 3-item MH screen (PHQ-based) | Higher depressive mood & suicidal ideation |
| Duarte et al., 2018 | 24.6% any-role | More SM platforms; low SES; LGB status | PHQ-9; CPSS; SI item | Higher depression, PTSD, and suicidal ideation |
| Jamroni et al., 2025 | 72% high exposure | General SM exposure | 14-item MH scale (Nursalam) | Poorer overall mental health ($p = 0.000$) |
| Marengo et al., 2024 | NR | Number of apps used | Internalizing scale; SIQ-JR | Higher internalizing symptoms & suicidal ideation |

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|-----------------------|------------------------------|---|---------------------------------|---|
| Tian et al., 2018 | NR | Cybervictimization frequency | SCARED; DSRSC; school wellbeing | ↑ anxiety, ↑ depression, ↓ school wellbeing |
| Viner et al., 2019 | NR (very frequent SM use) | Very frequent SM use; cyberbullying; poor sleep | GHQ-12; wellbeing scales | Higher distress; lower happiness & life satisfaction |
| Skogen et al., 2023 | 74.5% ≥1 negative experience | Amount of social media use | GAD-7; SMFQ; WEMWBS | Higher anxiety, higher depression, lower wellbeing |
| Liu et al., 2025 | NR (event-based) | Online harassment episode | Text-based OER indicators | ↓ happiness, ↑ negative emotion, ↑ anger, ↑ suicide markers |
| Winstone et al., 2024 | NR | Cybervictimization frequency | Self-harm item | Higher risk of self-harm at T2 (AOR 1.54–1.94) |
| Li et al., 2023 | 37.5% any involvement | ≥3h/day online play; bully-victim role | Psychosomatic symptom items | ↑ sadness, depression, anxiety, sleep problems |
| Gómez Tabares et al. | NR | Bullying + cyberbullying roles | BDI; Plutchik scale | Higher depression & suicide risk (R ² =0.64) |
| Nagata et al., 2025 | NR (lifetime item) | Being cybervictimized | CBCL; KSADS | ↑ depression, somatic symptoms, suicidal behaviors |
| Calvete et al., 2019 | NR | Cybervictimization predicts perpetration | — (no MH scale) | No mental health outcomes measured |
| Chu et al., 2019 | NR | Depression, anxiety, loneliness | Multiple Chinese MH scales | MH problems predicted later cybervictimization |
| Fahy et al., 2016 | NR | Cybervictim/bully-victim roles | SMFQ; Mini-SPIN; WEMWBS | ↑ depression & social anxiety |
| Gao et al., 2021 | NR | Cybervictimization | Depression scale (latent) | Bidirectional CV ↔ depression |
| Zhu et al., 2021 | NR | Low self-control | Anxiety scale; NSSI checklist | Anxiety mediated CV → NSSI |

In China, Li et al. (2023) reported that adolescents classified as bully–victims had the highest risk of depressive symptoms, with adjusted odds ratios ranging from approximately 1.6 to 2.5. Longitudinal evidence from Gao et al. (2021) further suggested bidirectional relationships between cybervictimization and depression, indicating that pre-existing psychological vulnerability may increase the risk of later cyberbullying exposure.

Similarly, anxiety emerged as a consistent outcome. Tian et al. (2018) found that peer relational stress partially mediated the association between cybervictimization and anxiety, while Zhu et al. (2021) demonstrated that anxiety mediated the pathway from cybervictimization to non-suicidal self-injury, particularly among adolescents with lower self-control.

Table 3. Methodological Quality and Risk of Bias Assessment of Included Studies

| Study (Year) | Design | Tool used | Overall risk of bias | Rationale |
|----------------------------|------------------------|------------|----------------------|---|
| Fahy et al., 2016 | 2-wave cohort | NOS | Low-moderate | Prospective design; good adjustment; some attrition |
| Wright et al., 2018 | 2-wave cohort | NOS | Moderate | Limited confounder control; self-report exposure |
| Wright & Wachs, 2019 | 2-wave cohort | NOS | Moderate | Small sample; self-report measures |
| Mahanta & Khatoniyar, 2019 | Cross-sectional | JBI | Moderate-high | Small sample; non-validated CB scale |
| Duarte et al., 2018 | Cross-sectional | JBI | Moderate-high | Clinical sample; selection bias |
| Calvete et al., 2019 | RCT + cohort | NOS + RoB2 | Low-moderate | Strong design: but outcomes focused on perpetration |
| Viner et al., 2019 | 3-wave cohort | NOS | Low-moderate | Large representative sample; strong adjustment |
| Cava et al., 2020 | Cross-sectional | JBI | Moderate | Good measures; no temporality |
| Tian et al., 2018 | 3-wave SEM | NOS | Low-moderate | Clear mediation model; some attrition |
| Chu et al., 2019 | 3-wave cohort | NOS | Moderate | Bidirectional model; limited covariates |
| Gao et al., 2021 | 2-wave cohort | NOS | Moderate | Good sample; residual confounding possible |
| Zhu et al., 2021 | 3-wave cohort | NOS | Moderate | Strong mediation; self-report exposure |
| Skogen et al., 2023 | Cross-sectional | JBI | Moderate | Large population sample; but cross-sectional |
| Li, Wu & Hesketh, 2023 | Cross-sectional | JBI | Moderate | Good measurement; no temporality |
| Kim et al., 2025 | Cross-sectional (GLMM) | JBI | Moderate | Robust modelling; single-item CB |

| | | | | |
|----------------------------|-----------------------------|---------------|---------------|--|
| Nagata et al., 2025 | Prospective cohort (ABCD) | NOS | Low–moderate | National sample; good covariates |
| Winstone et al., 2024 | Longitudinal cohort | NOS | Moderate | Good follow-up; limited mental health measures |
| Marengo et al., 2024 | Cross-sectional mediation | JBI | Moderate | Good mediation; cross-sectional |
| Liu et al., 2025 | Digital trace (quasi-long.) | JBI (adapted) | Moderate–high | Innovative method; non-adolescent sample |
| Fehintola & Ogunniyi, 2025 | Cross-sectional | JBI | Moderate | Valid anxiety scale; limited covariates |
| Jamroni et al., 2025 | Cross-sectional | JBI | High | Very small sample (N=50); single school |
| Gómez Tabares et al., 2024 | Cross-sectional | JBI | Moderate–high | Girls-only sample; strong modelling |
| Balt et al., 2023 | Qualitative IPA | JBI-Qual | Moderate | Rigorous interviews; limited generalizability |

Self-Harm and Suicidal Behaviors

The association between cyberbullying and suicidality was among the most robust findings. In a large U.S. cohort, Nagata et al. (2025) reported that cybervictimized adolescents had more than twice the odds of suicidal behaviors one year later (AOR = 2.62). Similarly, Winstone et al. (2024) found elevated risk of self-harm among both cybervictims and bully–victims.

Marengo et al. (2024) identified a serial pathway linking social media use, visual cyberbullying exposure, internalizing symptoms, and suicidal ideation. Among Colombian adolescent girls, Tabares et al. (2024) reported that bullying and cyberbullying explained 64% of the variance in suicide risk, with depression acting as a key mediator.

Well-Being and Psychosocial Functioning

Beyond clinical symptoms, cyberbullying was associated with poorer overall well-being. Viner et al. (2019) reported that frequent social media use was linked to lower life satisfaction and higher psychological distress, largely mediated by cyberbullying, sleep problems, and reduced physical activity. Similarly, Skogen et al. (2023) documented declines in mental well-being among adolescents experiencing negative online interactions. Complementing survey-based findings, Liu et al. (2025) demonstrated decreases in happiness and increases in negative emotional expression following cyberbullying incidents.

Mediating and Moderating Mechanisms

Several pathways explained how cyberbullying influenced mental health outcomes. Anxiety, peer relational stress, and sleep problems consistently emerged as key mediators. At the same time, individual and contextual protective factors, particularly self-control and school connectedness, were found to buffer the impact of cybervictimization. These findings highlight potential targets for prevention and intervention strategies.

Overall Synthesis of Evidence

Table 2 summarizes prevalence estimates, risk factors, mental health measures, and outcomes across all included studies. Overall, the evidence consistently indicates that cyberbullying is associated with increased depression, anxiety, suicidal behaviors, and reduced well-being among adolescents across diverse settings and study designs.

Discussion

This systematic review synthesized evidence from 23 studies examining the relationship between cyberbullying and adolescent mental health across diverse countries and methodological designs. Overall, the findings consistently indicate that cybervictimization is associated with poorer mental health outcomes, including higher levels of depression, anxiety, psychological distress, suicidal ideation, and non-suicidal self-injury (NSSI), as well as reduced well-being. While most cross-sectional studies demonstrate robust associations, longitudinal evidence suggests that cybervictimization often precedes mental health deterioration. However, bidirectional relationships were also observed, indicating that pre-existing psychological vulnerability may increase susceptibility to cybervictimization.

Cyberbullying and Internalizing Symptoms

Across multiple settings, adolescents exposed to cyberbullying showed substantially higher risks of internalizing problems. In Norway, Skogen et al. (2023) found that exposure to negative online acts and exclusion more than doubled the odds of case-level depression (OR = 2.29, 95% CI 1.93–2.72) and nearly doubled the odds of anxiety (OR = 1.91, 95% CI 1.65–2.20), with moderate effect sizes in linear models ($\beta = 0.46$ SD for depression; $\beta = 0.36$ SD for anxiety). Similarly, Li et al. (2023) reported that adolescents classified as bully-victims had the highest risks of depression, anxiety, sleep problems, and somatic complaints (AORs ≈ 1.6 – 2.5), suggesting cumulative psychological burden among youth experiencing multiple roles in cyberbullying dynamics.

Longitudinal evidence further strengthens causal interpretation. Fahy et al. (2016) reported that cybervictims had higher odds of later depression (OR = 1.44) and social anxiety (OR = 1.52), even after adjusting for baseline mental health. Similarly, Tian et al. (2018) demonstrated that cybervictimization predicted later depression through peer relational stress (indirect = 0.06, 95% CI 0.022–0.106) and reduced school well-being (indirect = -0.08). These findings are consistent with meta-analytic evidence demonstrating moderate associations between cybervictimization and depression and anxiety (Giumetti & Kowalski, 2022; van Geel et al., 2022).

However, the relationship between cyberbullying and mental health appears to be bidirectional. Chu et al. (2019) found that pre-existing depression and anxiety predicted subsequent cybervictimization, supporting the stress-generation model, whereby psychologically vulnerable adolescents may become more likely targets of online aggression. This interpretation is consistent with earlier findings from Rose and Tynes (2015), which highlight reciprocal pathways between emotional distress and cyberbullying involvement.

Cyberbullying, Suicidal Ideation, and Self-Harm

This review also provides strong evidence linking cybervictimization to suicidality. Using data from the U.S. ABCD cohort, Nagata et al. (2025) found that lifetime cybervictimization predicted higher odds of suicidal behaviors one year later (AOR = 2.62, 95% CI 1.73–3.98). Similarly, Winstone et al. (2024) reported that cybervictims had increased risk of subsequent self-harm (AOR = 1.54), while bully-victims demonstrated even higher risk (AOR = 1.63), suggesting cumulative vulnerability among adolescents involved in multiple cyberbullying roles.

Mechanistic evidence further supports these associations. Zhu et al. (2021) demonstrated that anxiety mediated the pathway between cybervictimization and NSSI, particularly among adolescents with low self-control, highlighting the protective role of emotional regulation. These findings align with broader literature identifying anxiety and emotional dysregulation as key mechanisms linking interpersonal stress to self-harm behaviors (Bentley et al., 2015; Nock, 2010).

Role of Social Media Use and Digital Exposure

Several studies indicate that negative online experiences, rather than screen time alone, drive adverse mental health outcomes. Viner et al. (2019) reported that very frequent social media use predicted higher psychological distress (girls: aOR = 1.31; boys: aOR = 1.67), with 58–80% of the association mediated by cyberbullying, poor sleep, and low physical activity among girls. These findings suggest that cyberbullying represents a central mechanism through which intensive social media use affects mental health, consistent with prior research by Orben and Przybylski (2019) and Kelly et al. (2018).

Similarly, Marengo et al. (2024) identified a serial pathway linking increased social media use, exposure to visual cyberbullying, internalizing symptoms, and suicidal ideation (total indirect effect = 0.851, 95% CI 0.476–1.250). These findings highlight that even passive exposure to harmful online content may negatively affect adolescent mental health.

Gender Differences and Contextual Variation

Findings regarding gender differences were mixed. Viner et al. (2019) reported stronger mediation effects among girls, whereas Gao et al. (2021) found that cybervictimization predicted later depression primarily among boys. These mixed findings reflect previous literature suggesting that girls may be more affected by relational and appearance-based cyberbullying, whereas boys may be more affected by status-based or aggressive online interactions (Modecki et al., 2014). These differences highlight the importance of context-specific and gender-sensitive intervention strategies.

Strengths and Limitations of the Evidence Base

This review benefits from the inclusion of large, nationally representative cohorts and longitudinal studies, which strengthen causal interpretation and generalizability. However, nearly half of the included studies were cross-sectional, limiting causal inference. Furthermore, heavy reliance on self-report measures and single-item cyberbullying assessments in some studies may have introduced measurement bias and underestimation of prevalence. Additionally, evidence from low- and middle-income countries remains limited and methodologically uneven, highlighting an important gap in global cyberbullying research. Future studies should prioritize longitudinal designs, standardized cyberbullying measures, and greater representation from under-researched regions.

Implications for Policy and Practice

The findings of this review have important implications for prevention and intervention strategies. Schools should consider integrating routine screening for cybervictimization alongside depression and anxiety screening, particularly among high-risk groups such as heavy social media users, sexual minority youth, and students experiencing sleep disturbances. Digital literacy programs should emphasize emotional regulation, bystander intervention skills, and critical awareness of algorithmic amplification. Additionally, collaboration between educators, families, and social media platforms is essential to create safer online environments for adolescents.

Conclusions

This systematic review provides consistent evidence that cybervictimization is associated with adverse mental health outcomes among adolescents, including increased depression, anxiety, suicidal ideation, and non-suicidal self-injury. Longitudinal findings suggest that cyberbullying often precedes mental health deterioration, although bidirectional relationships also exist. These findings highlight cyberbullying as an important public health concern in the context of increasing social media use among adolescents. Prevention strategies should integrate school-based screening, digital literacy programs, and targeted mental health support for at-risk youth.

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Conflict of Interest

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